

COLUMBIA UNIVERSITY BULLETIN 2003-2005 MAILMAN SCHOOL OF PUBLIC HEALTH



The Mailman School of Public Health is uniquely positioned to take advantage of the resources available to address some of our most pressing health challenges, beginning with our neighboring communities . . . and extending around the globe. —Allan Rosenfield, M.D., Dean



Columbia University
MAILMAN SCHOOL
OF PUBLIC HEALTH

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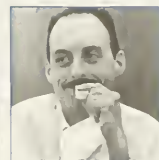
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The Mailman School of Public Health is uniquely positioned to take advantage of the resources available to address some of our most pressing health challenges, beginning with our neighboring communities . . . and extending around the globe. —Allan Rosenfield, M.D., Dean



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A Message from the Dean



Our world is growing increasingly interconnected. The proliferation of technology, scientific advancements, and political and social discourse have the potential to add significantly to the health and well-being of individuals and communities globally. At the same time, we live in a world of increasing health disparities between rich and poor, both in our own country and in resource-poor settings in the developing world.

The Mailman School of Public Health is uniquely positioned to take advantage of the resources available to address some of our most pressing health challenges, beginning with our neighboring communities in Harlem and Washington Heights, and extending around the globe. The School's academic programs provide students with a learning environment that encourages free thinking, responsible and ethical decision making, scientific inquiry, and critical analyses. Our world-renowned faculty and relationships with government agencies and ministries and NGOs provide unparalleled opportunities for collaboration and access for our students.

The Mailman School has an impact on the health of communities locally and globally through our research, education, and service initiatives, working on a construct of basic human rights. From our work with organizations and school-based clinics in northern Manhattan, to programs in the field in resource-poor countries in Africa, Asia, and Latin America, our faculty, students, and staff address issues such as the HIV/AIDS pandemic and other emerging infections; the role of environmental pollutants in disease; the implications of health care policy initiatives; reproductive health; cancer, asthma, and other chronic illnesses; forced migration and health; and bioterrorism and disaster preparedness.

As one of the first schools of public health in the country, and the only accredited school of public health in New York City, the Mailman School of Public Health has been a leader in the evolving and increasingly complex world of disease prevention and health promotion. Whether you are new to the field of public health or continuing your public health education, at the Mailman School you will be able to take advantage of the extraordinary learning opportunities we offer both inside and outside of the classroom. I invite you to read through these pages to learn more about studying at the Mailman School of Public Health. Explore our Web site at <http://www.mailman.hs.columbia.edu>. Talk to faculty and students. Ask questions. And we hope that you join us as we work to effect change and make a difference in people's lives.

Allan Rosenfield, M.D.

Dean



Welcome to the Mailman School of Public Health at Columbia University in the City of New York.

The Mailman School is the only accredited school of public health in New York City and one of the oldest in the nation. You will more fully appreciate the unique opportunities we offer in the pursuit of public health and understand who we are if we begin with an explanation of our identity.

The **Mailman School** got its name from a generous gift from the Mailman Family Foundation on behalf of their late father and husband, Joseph L. Mailman.



Mr. Mailman was a prominent businessman and philanthropist, committed to health care and education. As a businessman, his ventures began when he founded the Utica Knife and Razor Corporation, which became one of the first conglomerates in North America. Throughout his life, Joseph Mailman's commitment to health care and education was evident, reaching back to when he played a direct role in assisting families fleeing from Nazi Germany. A combination of entrepreneurial spirit and a deep-seated commitment to supporting individuals, families, organizations, and communities in the most difficult of times truly exemplifies the commitment of public health, and the name of Joseph Mailman befits our curriculum, our spirit of public health practice, and our school's mission.

The mission of Columbia University's Mailman School of Public Health is to improve the public's health, prevent disease, and strengthen equitable and effective health care service through high-quality educational programs and health communication efforts, and through local, national, and global research and service initiatives.

Columbia University is one of the most preeminent research universities in the world, with state-of-the-art facilities, faculty who are leaders in their fields with a long history of intellectual and academic endeavors, and alumni/ae who have made contributions to their fields of practice leading to numerous distinctions, including sixty-four Nobel prizes, Academy Awards, Pulitzer prizes, and others. Both the University's Morningside campus, where central administration, undergraduate and graduate schools of arts and sciences, and other professional schools reside, and the Health Sciences campus, a complex of hospitals, research centers, and six graduate schools, share library facilities, laboratories, and resources that all students and staff can access throughout their education.

The phrase "in the City of New York" significantly places the Mailman School within the larger research University, situating it in a metropolitan center rich with culture,



experienced through the arts, through business, through education, and through other industries that make New York City a booming metropolis. But along with all our urban campus's excitement come those challenges that Columbia must confront and tackle. Public health issues—including access to quality care, homelessness, the plight of young mothers, people suffering from chronic mental illnesses such as schizophrenia, people with chronic physical illnesses such as hepatitis, tuberculosis, and HIV/AIDS—abound. Partnerships with our New York City community, our local neighbors, community agencies, our city, state, and national governments, and our international community are inherent in our mission. These partnerships date back to the 1920s, when our school formed a partnership with the New York City Department of Health, the oldest public department of health in the country, and that partnership continues today in the original clinic building that remains part of our campus.

In these pages you will read in detail about the nature of public health education at the Mailman School of Public Health at Columbia University. You will be exposed to its faculty, its staff, its research, its students, and the vibrant and dynamic relationships that evolve out of our common bond, to sustain and improve health for our global community.



PUBLIC HEALTH—AT THE CROSSROADS OF PREVENTION AND CURES

The foundation of all schools of public health across the country is the concept of prevention. As a profession, public health is devoted to supporting and improving the health and wellness of communities through research, programs, and services aimed at preventing the onset of disease or illness. When illnesses plague individuals, communities, neighborhoods, and countries, public health professionals act to identify solutions. That is but half of the public health intervention. The remaining responsibility is working to prevent disease reoccurrence, to help people identify tools within themselves, their communities, and their governments to solve the problems in the most appropriate and sustainable ways.

The Mailman School of Public Health is no different. When faced with a health problem, we study its existence in the community, its rate of transmission, and its prevalence; these responsibilities rest with the Mailman School's epidemiologists. To verify the significance of their research findings, to give credence to the extent of the disease problem, our biostatisticians are called into action. The programs



"Columbia University is home to one of the most successful training programs in psychiatric epidemiology in the world. Fellows are introduced to the central questions in the field and are encouraged to address those questions through training in psychiatry, epidemiology, statistics, and the social sciences. Many of the graduates of this thirty-year-old program have gone on to become leaders in the field of psychiatric epidemiology."

Bruce Link, Ph.D.

*Professor of Epidemiology (psychiatry),
Director of the Center for
Violence Research and Prevention,
Member, Institute of Medicine, 2002*

developed to address the disease and to educate the community about the social, cultural, and political implications of its existence and treatment are led by our sociomedical scientists. Yet some of our most vulnerable populations, such as women who are young and/or single parents, children, and those displaced by war need targeted services to promote their well-being through the difficult times that face them. Our Heilbrunn Department of Population and Family Health commits itself to these causes. To ensure that our interventions are cost-effective and grounded in strong management and policy principles, our Department of Health Policy and Management intercedes. All of these interventions occur in a global context, in an environment that plays a significant role in supporting health promotion or threatening it. This interdependent relationship with our environment is critical to our success, and for that knowledge we turn to our environmental health scientists.

The web of prevention necessary in these technologically, politically, and socially complicated times must be strong; it must be collaborative; it must be ethical; it must be prepared to stand up for what is right, just, fair, and necessary; and it must lead the crusade for a cure. At the Mailman School of Public Health, our curriculum is oriented toward accomplishing those goals. Our faculty support students as they evolve into leaders capable of carrying this responsibility forward; our seventeen research centers provide the venue to put theory into practice. Sustaining healthy communities through prevention strategies has historical roots in the beginnings of the public health field; the Mailman School of Public Health respects that history, understands it, and paves new roads through it every day, in and out of the classroom.

PUBLIC HEALTH—AT THE CROSSROADS OF PHYSICAL AND SOCIAL SCIENCES

The field of public health requires its professionals to develop competencies in both the physical and social sciences. The scientific foundation of the public health field is epidemiology, the study of patterns of disease and injuries in communities and the scientific applications to control health problems. Epidemiologists are the detectives

1918 Columbia University's College of Physicians & Surgeons (P&S) receives an endowment from the Estate of Joseph DeLamar to establish an educational program in public health.

1921 May 2, the Trustees of Columbia University establish the DeLamar Institute of Public Health.

1922 The Institute of Public Health formally opens, offering the M.S. in public health degree.

1922-1939 Haven Emerson, M.D., professor of health administration and founding director of the Institute of Public Health, establishes the broad, multi-level thinking and practice of epidemiology, which remains today.

1922-1940 Robert Emmet Chaddock, Ph.D., '08, teaches *Principles and Methods of Statistics*, which later becomes *Introduction to Population and Vital Statistics, and Studies in Population*.

1938-1939 Biostatistics is taught for two semesters and leads into epidemiology in the third semester.

1939 The Institute of Public Health and the NYC Department of Health combine offices with the district health center at 600 West 168th Street.

1940 Ernest Stebbins, M.D., M.P.H., is appointed full professor of epidemiology. :: Doctor of Medical Science in the field of public health is offered.

1940-1949 Harry Stoll Mustard, M.D., LL.D., becomes second director of the Institute.

1940-1975 John William Fertig, Ph.D., is appointed full professor of biostatistics. As head of the division, he expands the Biostatistics (BIO) curriculum to include advanced courses; introduces the numerical method and biometric

method to research at the medical center; collaborates with William A. Silverman, M.D., who demonstrates the role of oxygen administration in the development of retrolental fibroplasia, a major cause of blindness in newborns; and also brings biostatistics to dental research and psychopathology.



Work in action at the Jerome L. and Dawn Greene Infectious Disease Laboratory at the Mailman School of Public Health.

in the public health profession, investigating disease, collecting and evaluating evidence, and presenting their findings to assist in planning effective and appropriate interventions. This detective work requires tools of scientific inquiry, critical evaluation, and evidence-based interventions. Faculty from this department are directing the Long Island Breast Cancer Study Project, a major study of environmental risk factors for breast cancer on Long Island, and investigating a follow-up study of the Chernobyl accident, looking at thyroid cancer and leukemia. The department also runs a Psychiatric Epidemiology Training Program, one of a small handful of programs in the country that study the prevalence and etiology of a range of mental disorders. One hundred fifteen researchers have finished the program and have gone on to be pioneers in this field.

Statistical analysis of research to develop new medical treatments is essential to the integrity of good clinical practice. Our Department of Biostatistics upholds this value and plays a crucial role in designing and evaluating research methodology. Students have the opportunity to interact with the department's talented faculty, who are directly involved in cutting-edge research projects sponsored by their own fields of interest or as consultants to research throughout the entire Health Sciences campus.

The breadth of involvement in science also extends into the Environmental Health Sciences Department. Here public health represents an optimization of the interaction between people and the world in which they live to prevent their actions from adversely affecting the environment so that the environment will not adversely affect their well-being. By being engaged in this dialogue in and out of the classroom, students develop a better understanding of the basic environmental sciences influencing environmental policy; this ultimately leads to better public health. Within this department are in-depth studies of air and water pollution, lead poisoning, and other environmental maladies that lead to compromised health. Students have access through the faculty to state-of-the-art research throughout the department centers and at other research institutes, such as The Earth Institute at Columbia University. Currently, the Columbia Center for Children's Environmental Health, located in this department, is leading a study of in

1945 The designation "Institute" is changed to "School" by University Trustees, July 1, 1945. The School becomes the first school of public health to offer a Master of Science in Hospital Administration. Eight courses in biostatistics are now offered.

1946 The Institute of Public Health begins offering the Master of Public Health degree in addition to the M.S. and D.P.H. :: Leonard J. Goldwater, M.D., M.S.P.H., is appointed professor of industrial hygiene.

1947 E. Gurney Clark, M.D., M.P.H., Dr.P.H., is appointed full professor of epidemiology.

1948-1955 Harold W. Brown, Sc.D., M.D., Dr.P.H., becomes dean of the School and serves for the next seven years.

1952 The Institute of Administrative Medicine is started, with a new professor, E. Dwight Barnett, M.D., as director

1955 The School is designated the School of Public Health and Administrative Medicine :: Clement Clay, M.D., C.M., is appointed to lead the School's Hospital Administration Program which he does until his retirement in 1970. New offerings are developed in administrative medicine including a one-year residency

1955-1968 Ray Trussell, M.D., M.P.H., serves as DeLanar Professor and director of the School of Public Health and Administrative Medicine

1957-1965 Harold Baumgartner, Jr., M.S., assistant professor of administrative medicine, initiates postgraduate training educational programs of instruction in the fields of public

health, environmental and hospital administration

1958 A new course, Environmental Health Services, is introduced

Late 1950s A new curriculum is developed with the Department of Psychiatry in the Division of Community Medicine. Established under Victor Bernard, M.D.

utero growth of babies whose mothers were exposed to environmental carcinogens and other materials after the World Trade Center collapse. Dr. Federica Perera, Dr.P.H., and Dr. Virginia Rauh, Sc.D., are the principal investigators. Dr. Sally Ann Lederman, Ph.D., directs this particular study.

The curriculum at Mailman School of Public Health complements this orientation to the physical sciences with an in-depth understanding and analysis of the broader social, political, cultural, and economic climate. This balance promotes social science research and policy development, cultivating political and economic data that allow assessment of and intervention for the health of the public, thus lessening the disparities between cultures and their access to quality health care. In the Department of Sociomedical Sciences, students use social science theory and research methods to analyze the contextual factors—social, political, economic, cultural, and ethical—that shape people's experiences of health and illness. Students have the opportunity to apply these skills in faculty- and department-sponsored centers. The Center for Applied Public Health engages partners from communities, health departments, and allied public health disciplines in the application of theories and methods of social science to important public health issues facing the nation today. This Center's faculty and staff research areas related to women and children living with HIV, smoking behaviors and tobacco control, and health-practitioner training programs for New York and New Jersey. The collaborative relationships between this Center, the faculty, and agencies throughout New York and New Jersey are examples of social and political research intersecting with public health practice.



Azadeh Khalili, M.P.H. '98 (right), shares new information on women's health issues with Community Scholars. Clarisa Cadenas, M.P.H. '04 (left), looks on.

PUBLIC HEALTH—AT THE CROSSROADS OF SCHOLARSHIP AND PRACTICE

The concept of the "scholar-practitioner" is not unique to graduate education. However, the possibility for our Mailman School student body to develop this identity is remarkable. Within the academic departments there are practicum opportunities for students, allowing them to develop skills influenced by the classroom theories they have encoun-

1960 The School's Division of Environmental Science is created and led by Leonard J. Goldwater, M.D., Sc.D.

M.D., M.P.H. '60, assistant professor of public health practice, takes over the continuing education program

new teaching program in Environmental Sciences, which he directs until his death

1961 A new joint degree program is inaugurated with the School of Architecture

1967 The Psychiatric Epidemiology Training Program is begun by Mervyn Susser and Ernest Gruenberg, Ph.D., with funding from NIMH. Granville H. Sewell, Ph.D., joins the Columbia faculty where, in the early 1970s, he organizes a

1968 The first institution in the United States to offer a graduate degree in sociomedical sciences is established by Jack Elinson, Ph.D. The School establishes a collaboration with Harlem Hospital (now Harlem Hospital Center), which remains strong today.

1970–1978 John H. Bryant, M.D., serves as dean of the School of Public Health.

1973 Dr. Lowell Bellin, M.D., M.P.H., Health Administration Division head and a former New York City health commissioner, starts a joint degree program with Columbia's Business School, one of the first interdisciplinary programs in the United States.

1975 Allan Rosenfield, M.D. '59, is recruited to head up the newly created Center for Population and Family Health and creates the academic program in Population and Family Health. Robert Weiss, M.D. '51, becomes dean.

1975–1980 The Center becomes active in International Family Planning Operations Research (OR).

1975–1992 Joseph L. Fleiss, M.S. '61, Ph.D. '67, leader in mental health statistics who wrote the definitive textbook in statistical methods for rates and proportions, serves as head of BIO, which grows in both faculty and student body. Fleiss becomes a leader in attempts to control for unreliability of psychiatric diagnoses and demonstrates equivalence of



"The CRM and POR tracks in Biostatistics respond to a pressing need for advanced training in clinical research design and analysis. As medical school curricula become increasingly full, and as apprenticeship prospects wane due to ever-larger pressures related to clinical care and grant funding, pathways to becoming a clinical researcher have narrowed. Our programs offer talented but novice investigators the opportunity to master the basic principles and scientific methods essential for conducting human research studies."

Melissa Begg, Sc.D.
associate professor and director of
Academic Programs,
Department of Biostatistics

tered while satisfying academic requirements for graduation. The Heilbrunn Department of Population and Family Health is one of six academic departments that provide opportunity to work in the field of public health. The Young Men's Health Clinic in Washington Heights, directed by Bruce Armstrong, D.S.W., of the Mailman School of Public Health, provides a unique service to adolescent and young adult men in the schools in our community, while simultaneously serving as a training ground for our public health students. Working in the field for fourteen hours a week, meeting with a faculty member, and then writing a paper on the applications of theory and practice in the "real world" culminate the learning experience. It is the capstone experience for this department, and similar requirements exist in all other departments. Another example of a capstone experience is in our Department of Health Policy and Management, where similar opportunities exist for students to apply the theoretical concepts learned in classes to the diverse management and policy opportunities in the field of public health. Administrative residencies, internships at policy think tanks, and other settings serve as laboratories for students; this experience culminates in a two-day capstone experience where students present their experiences in the field at a department-wide conference.

Other departments offer academic programs to practicing professionals, affording them advanced training in clinical areas related to public health practice. For example, the Biostatistics Department offers programs of study designed for nurses, doctors, pharmacists, and other practicing health care professionals who wish to obtain rigorous training in the design and implementation of patient-oriented research studies. This track, the Master of Science in Biostatistics in Clinical Research Methods, exemplifies the importance of research study in public health practice.

Physicians and other health care professionals with specific practice and academic interests in mind are eligible to construct their own areas of study through the General Public Health program in the Department of Health Policy and Management. With Jeanne Stellman, Ph.D., as their advisor, these students take advantage of the flexibility their previous training provides them; they are able to pursue the Master's of Public Health and tailor it to meet their needs.

weighted kappa and intra-class correlation coefficients.

1976 The joint M.D./M.P.H. Program with P&S is approved by the University Senate and registered with the New York State Education Department. :: Family Planning Clinic, run by the Center for Population and Family Health, opens.

1977 Ph.D. degree in biostatistics is first offered through GSAS under the leadership of

Joseph L. Fleiss and John Van Ryzin, Ph.D. :: I. Bernard Weinstein, M.D., becomes head of the Division of Environmental Sciences and the field of molecular epidemiology is initiated. :: The graduate education Program in Population and Family Health starts. :: A single-degree M.P.H.

nurse administrator program for nurses interested in community health is initiated.

1978 Gertrude H. Sergievsky Center is founded with Mervyn Susser as chair. :: Young Adult Clinic is added to the Center for Population and Family Health. :: The Social Science and Maternal and Child Health Programs are launched in Population

and Family Health (PFH), beginning traditions that continue to the present

1978-1980 Bernard D. Challenor, M.D., M.P.H., serves as dean.

1979 Dual degree program with the School of Nursing is approved.

1979-1982 Barbara Snell Dohrenwend, M.A. '48, Ph.D. '54,

serves as head of the Division of Sociomedical Sciences (SMS)

1980 Jeanne M. Stellman, Ph.D. creates Women's Occupational Resource Center.

1980-1985 Operations Research Program focuses on Africa.

1980-1986 Robert Weiss serves as dean

1981 "June Course" begins in PFH, providing clinical training in the design, management, and evaluation of family planning and primary health programs to thousands of professionals working throughout the world during the 1980s.

1981-1991 Three chartbooks on family planning, child survival, and maternal mortality are published

"My internship at the Center for Disease Control and Prevention, in their Adolescent and School Health Division, was very meaningful and exciting. I got to see how the different disciplines in public health—research, program planning, policy development, and others—worked together. I also was able to see how the material I was learning in class was relevant and applicable to the work at the CDC."

Lorraine Marasigan, M.P.H. '04

Our doctoral educational opportunities supported through four of the academic departments, Biostatistics, Environmental Health Sciences, Epidemiology, and Sociomedical Sciences, further the advancement of public health research and practice.

Doctoral dissertations in these departments have included the following:

Biostatistics	Epidemiology
"Survival Models with Concomitant Variables in the Evaluation of Maintenance Therapy of Bipolar Illness," by Deborah Shapiro, 1986 graduate	"Correlates and Predictors of Fear of Crime: Defining the Situation for the Urban Elderly," by Henry Rajkowski, May 1996 graduate
Environmental Health Sciences	Sociomedical Sciences
Persistence of Biomarkers Following Smoking Cessation," by LaVerne Mooney, May 1994 graduate, awarded with distinction	"The Role of Sexual Abuse in the Drug Involvement of Arrested Women in New York City," by Tracy Durrah, October 2000 graduate

Our students take advantage of practice and scholarship opportunities not only through the academic departments, but also through our Office of Career Services and our Office of Student Affairs. Together, they provide additional opportunities for students to gain practical experience in the public health world. Through a student travel fund program, students can apply for funds that will permit them to present papers and posters at national and international conferences; they can obtain funding to support their work opportunities at competitive internships such as the Center for Disease Control and the World Health Organization, as well as at other highly respected government and non-governmental public health agencies. With a degree from the Mailman School of Public Health, the intersection of scholarship and the practice of public health extends into the field as our students have already succeeded in these arenas.

in several languages and widely distributed by Allan Rosenfield and Deborah Maine, M.P.H. '82. Dr. P.H. '98.

1982 Law and Policy Program begins in PFH.

1983-1991 Jennifer Kinsley, M.P.H. Ph.D., serves as chair of EPI.

1984 Formal linkage to NYS Department of Health established with PFH.

1985 Young Men's Clinic opens under the direction of Lorraine Tiezzi, M.Sc., and Bruce Armstrong, D.S.W. '86. Africa OR project establishes a field office in Abidjan. Eugene Litwak, Ph.D. '88, becomes head of SMS.

1986 Wei-Yann Tsai, Ph.D., is recruited from Brookhaven National Laboratories. School-based clinics open in two junior high schools in Washington Heights under the direction of Judith Jones, M.S. '83, and in two additional schools by 1990, with Lorraine Tiezzi as director. Jeanne M. Stellman becomes editor of *Women and Health*, a position she still holds.

1986-present Allan Rosenfield serves as dean.

1987 OR on HIV/AIDS begins in Uganda and Thailand.

1988 Prevention of Maternal Mortality program is launched in West Africa by Allan Rosenfield and Deborah Maine. Allan Rosenfield steps down as director of the Center for Population

and Family Health. Lawrence Brown, Ph.D., comes to the University as head, Division of Health Administration, and is instrumental in expanding the focus and name of the division to include policy and management.

1990 Executive M.P.H. Program admits its first class. BIO and EPI move offices to newly renovated 18th floor of Presbyterian Hospital.

1991 Joseph H. Graziano, Ph.D., is recruited as head of the Division of Environmental Sciences. The M.P.H. in Health Promotion and Disease Prevention is established in SMS. Jeanne M. Stellman becomes editor in chief of the fourth edition of the *International Labor Office Encyclopedia of Occupational Health and Safety*, published 1997.



Stephen Morse, Ph.D. (top), Director of the Center for Public Health Preparedness, a one-of-a-kind center specializing in bioterrorism and emergency preparedness in an urban environment agency funded by the U.S. CDC, is collaborating with W. Ian Lipkin, Ph.D. (bottom), director of the Infectious Disease Laboratory, to establish the National Institutes of Health, Northeastern Biodefense Center.



PUBLIC HEALTH—AT THE CROSSROADS OF GLOBAL, NATIONAL, AND LOCAL COMMUNITIES

Situated in New York City, in Washington Heights, the northern part of Manhattan, in one of the world's most preeminent academic medical centers, the Mailman School of Public Health participates in global, national, and local health initiatives. Each academic department at the Mailman School of Public Health has long-standing relationships with agencies that work across these three levels. The Heilbrunn Department of Population and Family Health runs school-based clinics in high schools throughout northern Manhattan. In our Department of Epidemiology, the Columbia Center for Youth Violence Prevention participates in research in the New York City area, developing programs and policies whose results are shared on the state and national levels. In 2000, the Center for Disease Control established this center as an Academic Center of Excellence.

As we learned from the events September 11, 2001, our world is much smaller than we had originally thought. The problems that seemed so far away such as threats of terrorism and bioterrorism were made very real at the doorstep of the United States, in the proverbial backyard of the Mailman School. Public health surfaced as a leader in bringing order to a disordered world, and the Mailman School of Public Health answered the call by educating the public about bioterrorism threats in response to the anthrax crisis. The School's Center for Public Health Preparedness and Center for Infectious Disease Epidemiologic Research, in partnership with New York Representative Nita Lowey, convened a forum on public health and bioterrorism preparedness. Responding to the crisis, educating the public, and raising further policy and practice implications, the Mailman School faculty shared their expertise in the national and international arenas.

Even before September 11, the Mailman School had significant impact on current global health issues. Our faculty study AIDS, tuberculosis, malaria, and other chronic diseases plaguing underdeveloped nations, not just from computers in their offices, or from scholarly debates with students in their classrooms, or from literature reviews in the library, but on-site in foreign lands. Studying arsenic contamination in well water in

1992 Paul Meier, Ph.D., becomes head of BIO and simultaneously chairman of the Department of Statistics. :: Social science and biomedical research begins on the acceptability of the new contraceptives Norplant® and Depo-Provera. :: The Center for Applied Public Health, with Cheryl Heaton, Dr.P.H. '91, director, is established in SMS.

1993 Working jointly with the Department of Pediatrics, a Head Start Center opens to serve young children and their parents in Washington Heights. Research on issues related to Head Start begins in the Center for Population and Family Health. :: Sherry Glied, Ph.D., is appointed to the President's Healthcare Task Force.

1994 A school-based clinic is established at George Washington High School. :: InCHDIR (International Center for Health Outcomes and Innovation Research) is established by the Division of Health Policy and Management (HPM) and the Department of Surgery at Columbia; it receives core support from P&S and Columbia-Presbyterian Hospital, and occupies space in

the same building as HPM. Its mission is to further the quality of clinical care by advancing the analytical methods for evaluating medical treatments and applying these methods to innovative approaches to patient care. In addition to evaluating the outcomes of care, InCHDIR is dedicated to advancing innovation in medicine by creating a better understanding of the process by which new

treatments emerge and become adopted into clinical practice.

1995 Geoffrey Howe, B.Sc., Ph.D., is appointed chair of EPI. :: Division of Environmental Sciences is renamed Division of Environmental Health Sciences (EHS). :: New clinical facility opens on Audubon Avenue for family planning, young adult, and young men's clinic. :: Prevention of

Maternal Mortality Network concludes fieldwork in West Africa and prepares for publication of final report. :: Law and Policy Project focuses on human rights and women's health. :: Long Island Breast Cancer Study is launched. The NIH-funded study is the most comprehensive population-based epidemiologic study of breast cancer and the environment among Long



"The poorest countries can't make it on their own. They will need help from the international community to fight malnutrition and infectious diseases such as tuberculosis, HIV, and malaria. These diseases devastate economies and destabilize societies. Disease control is therefore an economic and security priority, as well as a humanitarian imperative."

Jeffrey Sachs, Ph.D.

Public Health Professor of Health Policy and Management,

Director of The Earth Institute,

Chair of the CGHED Advisory Board, and Special Advisor to

JNI Secretary General Kofi Annan on the Millennium Development Goals

Bangladesh, the faculty from Environmental Health Sciences and Epidemiology, under the direction of Joseph Graziano, Ph.D., is designing research and intervention strategies to resolve this crisis.

The Mailman School's Center for Global Health and Economic Development (CGHED) is a partnership of the Mailman School, the College of Physicians & Surgeons, and The Earth Institute (at Columbia University) in collaboration with other parts of Columbia University and focuses on mobilizing global health programs to aid resource-poor countries in addressing poverty and the burden of disease. Another intervention program spearheaded by the Mailman School of Public Health is the MTCT-Plus, Maternal-to-Child Transmission Program, the first major multi-country, family-centered AIDS treatment program for developing countries. Through an unprecedented collaboration of private foundations including Bill & Melinda Gates, William and Flora Hewlett, Robert Wood Johnson, Henry J. Kaiser Family, John D. and Catherine T. MacArthur, David and Lucille Packard, Rockefeller, Starr, and the United Nations Foundations, MTCT-Plus is situated to save lives in resource-poor countries by engaging communities, families, and individuals in the comprehensive HIV prevention and treatment strategies, and will serve as models for countries and programs around the world.

Students are able to avail themselves of global opportunities through activities sponsored by these centers, as well as through newly developed Global Health track/Certificate programs of study, which students may integrate into their academic requirements through their department. The relationships the Mailman School faculty and administration have with foreign countries are far-reaching. Bangladesh, South Africa, Brazil—on almost every continent, Mailman School programs have had significant impact on communities' health improvement.

Students take advantage of these opportunities through numerous programs. Through the Heilbrunn Department of Population and Family Health, a select number of students apply to the Forced Migration Program at the time of application. Under the direction of Dr. Ronald Waldman, M.D., M.P.H., students study the practice, research strategies, and

Island women. The project develops a consortium of collaborating institutions throughout the New York area to develop the necessary tools and research procedures to conduct the study of breast cancer and the environment

1996 Cheryl Healtion, M.P.A. Dr.P.H. '91, becomes head of SMS and immediately expands faculty, programs, and student body

1997 Community Scholars Program begins in SMS :: Program on Forced Migration and Health is established in PFH :: The Center for the Psychosocial Study of Health and Illness, directed by Karolynn Siegel, Ph.D., is established in SMS :: The Evening Program in the Health Promotion and Disease Prevention track becomes the first evening program at the School of Public Health.

1997–1999 New tracks are developed in BIO, in Clinical Research Methods and Patient Oriented Research, under the direction of Melissa Begg, Sc.D.

1998 Ph.D. degree in environmental health sciences is first offered through GSAS. Funding from NIH training grant begins in 2000. :: National Institute for Environmental Health

Sciences (NIEHS) Center for Environmental Health in Northern Manhattan is established under Joseph H. Graziano. :: PFH introduces a practice-based M.P.H. program. Clinic opens at the School for Pregnant and Parenting Teens. :: Mailman Family Foundation presents the School with a \$33 million gift, the largest single gift to a school of public health at that time. The School becomes The Joseph L.

Mailman School of Public Health, named after Joseph L. Mailman, a noted philanthropist who was deeply concerned with the welfare of others and inherently understood the mission of public health. :: The M.P.H. in the history of public health and medicine is established in SMS, with David Rosner, Ph.D., and David Rothman, M.A., Ph.D., as codirectors. :: Jeanne M. and Steven D. Stelman,

Ph.D., M.P.H. '90, are awarded a \$5 million contract from the National Academy of Sciences to develop research methodology for assessing exposure to Agent Orange and other military herbicides used in the Vietnam War. :: Sherry Glied becomes chair of HPM.

1999 Columbia Center for Children's Environmental Health is established under

policy implications that arise out of the crises when groups of people are forced to leave their homes. Afghanistan and Iraq provide two examples of crises that the Forced Migration students have had the opportunity to study.

PUBLIC HEALTH—AT THE CROSSROADS OF MANAGEMENT, POLICY, AND PROGRAM IMPLEMENTATION

The complex nature of health care requires professionals who can successfully navigate through the rules and regulations of a highly regulated delivery system. It requires professionals who can develop policies that are sensible, promote access, and improve quality of service, while they simultaneously control for costs. In addition to having valid and reliable research findings, any public health intervention, to be successful, must have a strong foundation in existing policies. If the policy does not exist, and the research and intervention are necessary and valid, we must be prepared, as public health professionals, to influence and create new policies, filling in the existing gaps in service delivery.

Our faculty are no strangers to the political climate of the nation. By serving as expert witnesses, consultants, committee members, and influential players in suggesting new policy initiatives, Mailman School of Public Health faculty have met with government leaders, who have sought out their opinions and suggestions in numerous areas. For example, Allan Rosenfield, M.D., dean of the Mailman School of Public Health and DeLamar Professor of Public Health, testified before the Senate Committee on Health, Education, Labor, and Pensions on April 11, 2002, regarding the global HIV/AIDS initiatives and the need for increased federal funding.

Wendy Chavkin, M.D., M.P.H. '80, of the Heilbrunn Department of Population and Family Health and her colleagues from the Boston Medical Center brought doctors' voices to the welfare reform debate for the first time through their "Doctors Speak Out About Welfare Reform" program. Chavkin testified before the U.S. Congress on June 7, 2002, briefing Senate staffers and representatives of medical organizations and advocacy



Joseph Graziano, Ph.D., and Environmental Health Sciences students on field trip to Washington, D.C.

Frederica P. Perera, M.P.H. '76, Dr.P.H. '81. :: Forced Migration track is created in PFH under Ronald J. Waldman, M.D., M.P.H. :: Program on Averting Maternal Death and Disability is established in PFH under Allan Rosenfield and Deborah Maine. :: The M.P.H. in Aging and Public Health is established in SMS, with Steven Albert, Ph.D., and Victoria Raveis, Ph.D. '84,

as codirectors. :: Geoffrey Howe is named first Anna Cheskis Gelman and Murray Charles Gelman Professor of Epidemiology by Anna Gelman, M.P.H., who taught and inspired students for five decades. :: Lawrence Brown is appointed to lead the Columbia University Public Policy Consortium.

2000—present
Bruce Levin, Ph.D., serves as chair of BIO.

Under his dynamic leadership, the division experiences significant growth in all areas. **2000** Columbia Superfund Basic Research Program is established under Joseph H. Graziano. :: Full predoctoral fellowship is offered for the first time in BIO. :: Statistical Analysis Center for Clinical Trials is created under the direction of John L. P.

Thompson, Ph.D. :: Harriet and Robert H. Heilbrunn Center for Population and Family Health is named after benefactors for its 25th anniversary. :: Endowed chair is established in SMS for Barbara Snell Dohrenwend, its head from 1979 to 1982. :: The Josiah Macy, Jr. Foundation, dedicated to improving the health of individuals and the public by advancing education

and training of health professionals, makes a gift of \$1.5 million to establish the Macy's Scholars Program that will fully fund a fifth year of training for new physicians who want to pursue a master's degree in public health. :: Cheryl Heaton steps down as chair of SMS to become first president and CEO of the American Legacy Foundation. :: Sharon Schwartz, M.A. '74,

Ph.D. '85, M.S. '88, of EPI, receives the Presidential Teaching Award for Excellence in Teaching. Established in 1996, the presidential awards honor the best of Columbia's teachers for the influence they have on the development of their students and the part in maintaining the University's long-standing reputation for educational excellence. :: Lawrence Brown, professor and

"The Columbia University Executive M.P.H. program provides an expert and energetic faculty that encourages and enables its students to consider the body of knowledge surrounding a particular area, whether it be health care economics, law, policy, or organizational theory, and apply it to practical and current issues. My participation in the program has already been of immeasurable help to me in running a complex health care and health related organization."

Alan Krafchin

President and CEO of the Center for the Disabled

groups about the plight of families—especially single-parent families—on welfare who have chronically ill children with ongoing medical needs.

Christina Hoven, M.P.H. '83, Dr.P.H. '88, assistant professor of epidemiology at the Mailman School, who also holds appointments in the Department of Psychiatry at the College of Physicians & Surgeons and at the New York State Psychiatric Institute, testified on June 10, 2002, at a U.S. Senate hearing chaired by Senators Edward Kennedy and Hillary Rodham Clinton. Hoven's testimony focused on the initial findings of a study conducted across New York City on the effects of the events of September 11 on the mental health of children in the city's public schools.

Sherry Glied, Ph.D., professor and chair of the Department of Health Policy and Management, has served as a senior economist for the President's Council of Economic Advisors for both President George H. W. Bush and President Clinton. She was cochair of the Global Budgets and Economics Impacts Working Groups for President Clinton's Health Care Task Force.

The influential roles our faculty play in shaping policy on the local, state, and national levels inspire students across all departments to think about public health along the continuum of program design, implementation, management, evaluation, and policy implications.

Students who enroll in our Executive M.P.H. program in Health Services Management form yet another cohort of the Mailman School of Public Health that contributes a dynamic perspective to health care learning. These students enroll with five years of health care experience as physicians, administrators, lawyers, consultants, and pharmaceutical and insurance executives. They bring with them the practical applications of the health care field and further the management principles through class case-study discussions and intense lecture.

former chair of HPM is elected as a member of the Institute of Medicine (IOM). First-class enters COTI (Columbia On The Job Program).

2001 All the disciplines of the Mailman School of Public Health become departments. The School acquires the old Psychiatric Institute building at 722 West

168th Street as its new home. Dean's Office, Student Affairs, and SMS move into the building. :: Richard Parker, Ph.D., is the first anthropologist to become chair of SMS, and quickly expands the program, faculty, and students. The New York and New Jersey Public Health Training Center, directed by Maria Murrman, M.S. '77, Ed.D. '93, is established

in SMS. :: The Center for the History and Ethics of Public Health is established in SMS. :: The Columbia Alliance for Innovation in Health-care Management is created by the Mailman School of Public Health, the Business School, and P&S in conjunction with an industry advisory group drawn from across the health care sector.

2002 Paul W. Brandt-Rauf, M.S. '73, Sc.D. '74, M.D. '79, M.P.H. '80, Dr.P.H. '87, becomes chair of EHS. Under his leadership the department continues to grow in both faculty and students. :: Leslie Davidson, M.D. '78, M.Sc., becomes chair of the Heilbrunn Department of Population and Family Health (HPFH). :: NIEHS Center for

Environmental Health in Northern Manhattan, Regina M. Santella, Ph.D., director, Paul W. Brandt-Rauf, deputy director, has its funding renewed with one of the highest scores. :: Richard Parker establishes and becomes the first director of the Center for Gender, Sexuality, and Health in SMS. :: The M.P.H. in Urbanism and Public Health is established

in SMS with Robert Fullilove, M.S., Ed.D. '84, Mindy Fullilove, M.S. '74, M.D. '78, and Mary Northridge, M.P.H., Ph.D. '93, as codirectors. :: Ronald Bayer, Ph.D., associate director of Public Health Ethics and professor of sociomedical sciences, and Bruce Link, Ph.D. '82, professor of epidemiology and director of PET (Psychiatric Epidemiology Training),



"The MSPH is a place not only to learn about issues within your discipline, but also to participate in or even initiate programs of personal interest, and in the process to educate others and make a difference. Since the MSPH is a national and international leader in public health research, education, and service, involvement in school activities fosters student knowledge, leadership, and activism. MSPH prepares the leaders of tomorrow for the ever-changing world of public health."

Edward Littlejohn, M.P.H. '04

PUBLIC HEALTH—AT THE CROSSROADS OF SERVICE AND ACTIVISM

Access to quality health care is a right, not a privilege, for all. This profound statement is a basic tenet professed by both students and faculty at the Mailman School of Public Health. It motivates our students to stand up for the rights of the uninsured and engage in dialogue about this growing problem given that more than forty-one million people in the United States do not have health insurance. It motivates students to volunteer their time for the homeless, raising money or collecting coats for the community service agencies in our Washington Heights community. It drives our faculty to constantly inspire students through their own activism to serve as examples as agents for change.

The Public Health Professionals International Declaration of Health Rights, given to our students at convocation and at graduation, serves as a reminder that, as public health professionals, we must "dialogue and collaborate among citizens, professionals, communities, and policy makers." Our programs and services "should emphasize equity, accessibility, community participation, prevention, and sustainability." Many of our academic departments lead programs and services that serve as examples of where these health rights philosophies are practiced. The Department of Sociomedical Sciences' Harlem Center for Health Promotion promotes health of the Harlem community through various community collaboration efforts. Columbia University Head Start, a comprehensive program in collaboration with various schools and organizations throughout New York City, and managed by the Heilbrunn Department of Population and Family Health, provides direct service to the Washington Heights community. Over 85 percent of the staff are either current or former residents of the community. The National Center for Children in Poverty identifies and promotes strategies that prevent child poverty in the United States and that improve the lives of low-income children and their families. Utilizing experts at the Mailman School of Public Health, this Center has been a leader in research and policy initiatives that have had direct impact on the lives of our children and families across the country.

are named to the Institute of Medicine (IOM), a unit of the National Academy of Sciences that elects a select few members by the incumbent membership on the basis of their professional achievements and involvement with critical issues that affect the health of the public.

2003 New multidisciplinary M.P.H. track in Sexuality and Health,

offered jointly in PFH and SMS, begins accepting applicants for admission beginning in the fall term. :: BIO and EPI move to new space at 722 West 168th Street. :: Amy Fairchild, M.P.H. '90, Ph.D. '97, of SMS receives the Presidential Award for Excellence in Teaching. :: M.P.H. program in Global Health, under development in several tracks, is to be

offered as a multiple departmental offering by fall 2004. Global Health Certificate program is approved to accept students in 2005. :: The Mailman School of Public Health is granted reaccreditation for seven years by the Council on Education for Public Health, the accreditation body for schools of public health.



"The Harlem Center for Health Promotion collaborates closely with its community advisory board using a community-based participatory action approach to develop research activities. This means that members of the Harlem community are involved in every step of our work, from planning, priority setting, implementation, advocacy, and research interpretation. In order to understand and develop successful interventions, community participation is essential."

Joyce Moon-Howard, Dr.P.H. '97
Investigator, HCHP, and
Assistant Professor
of Sociomedical Sciences

Students themselves take action and further their studies by integrating service into their curricula and into their cocurricular activities. Pursuing a Master of Public Health in addition to another professional degree from one of the other graduate schools at the University (such as Social Work, International and Public Affairs, or Urban Planning) allows an integration of curricula, where community-based-service learning and activism are studied through different academic lenses. Ethics courses addressing diseases such as HIV/AIDS, policy courses on sexuality and health, and seminars on ethical and political controversies around health promotion and the state are just a few samplings of curriculum offerings that reinforce that for us "health depends on a protection from exploitation and discrimination on account of race, religion, political belief, ethnic group, national origin, gender, sexual preference, or economic or social status." Our curriculum is infused with the concept of health as a "fundamental right of every human being."

THE MAILMAN SCHOOL OF PUBLIC HEALTH—LEADERSHIP AT THE CROSSROADS

When choosing a school to pursue advanced studies in public health, consider a place that not only trains you in the scholarship of the field, but also develops your leadership potential in it. Classroom learning, while an integral part of any curriculum, must be balanced with practical applications; research opportunities must be available for you to further develop your own passion for inquiry. Opportunities to help communities in need must be readily available, allowing the zeal that has drawn you to this field to flourish. Mentorship and advisement from leaders in the field must be available to you for your successful indoctrination into this profession. Support and challenges must be plentiful so that when you graduate from a public health program, you graduate a leader. At the Mailman School of Public Health, our faculty are, in fact, leaders; they are pioneers in scholarship, practice, and service. Students at the Mailman School of Public Health are partners right along side of them, paving the way to new heights, new challenges, and over new crossroads in the ever increasingly complex world we live in.

Welcome to the Mailman School of Public Health at Columbia University in the City of New York!



Academic Calendar: 2003–2005

The following Academic Calendar was correct and complete as of the time of publication; however, the University reserves the right to revise or amend it, in whole or in part, at any time. Information on the current status of the Academic Calendar for the School of Public Health may be obtained from the Office of Student Affairs, 212-305-3927, or online at <http://www.mailman.hs.columbia.edu/studentaffairs/academicaffairs.html>.

Major Religious Holidays

Some of the major holidays are shown below. The Jewish and Islamic holy days begin at sundown on the preceding day. The exact dates for the Islamic holy days may vary by one or two days from the estimated dates given below:

2003–2004

Rosh Hashanah: Saturday, Sunday, September 27, 28

Yom Kippur: Monday, October 6

First days of Succoth: Saturday, Sunday, October 11, 12

Concluding days of Succoth: Saturday, Sunday, October 18, 19

Id al Fitr: Wednesday, November 26

Lunar New Year: Thursday, January 22

Id al Adha: Monday, February 2

First days of Passover: Tuesday, Wednesday, April 6, 7

Good Friday: Friday, April 9

Concluding days of Passover: Monday, Tuesday, April 12, 13

Shavuoth: Wednesday, Thursday, May 26, 27

2004–2005

Rosh Hashanah: Thursday, Friday, September 16, 17

Yom Kippur: Saturday, September 25

First days of Succoth: Thursday, Friday, September 30, October 1

Concluding days of Succoth: Thursday, Friday, October 7, 8

Id al Fitr: Sunday, November 14

Id al Adha: Friday, January 21

Lunar New Year: Wednesday, February 9

Good Friday: Friday, March 25

First days of Passover: Sunday, Monday, April 24, 25

Concluding days of Passover: Saturday, Sunday, April 30, May 1

Shavuoth: Monday, Tuesday, June 13, 14

Fall Term 2003

- August** 1 Friday. Last day to file application or change of name for October degrees. **NO EXCEPTIONS.**
- 26–28 Tuesday–Thursday. Registration for fall term. New Student Orientation.
- September** 2 Tuesday. Classes begin. First day to change programs.
- 12 Friday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- October** 15 Wednesday. Award of October degrees.
- November** 4 Tuesday. Election Day. **No classes.**
- 13 Thursday. Last day to drop individual courses or change grading option.
- 24–26 Monday–Wednesday. Continuing students register for spring term.
- 27–30 Thursday–Sunday. **Thanksgiving holidays.**
- December** 1 Monday. Last day to file application or change of name for February degrees. **NO EXCEPTIONS.**
- 8 Monday. Last day of classes.
- 12–19 Friday–Friday. Examination period. Term ends.
- 20 Saturday, to January 19, Monday. **Winter holidays.**

Spring Term 2004

- January** 14 New Student Orientation.
- 14–15 Wednesday–Thursday. Registration for spring term.
- 19 Monday. Martin Luther King Day. **No classes.**
- 20 Tuesday. Classes begin. First day to change programs.
- 30 Friday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- February** 2 Monday. Application deadline for fall admission. Last day to file application or change of name for May degrees. **NO EXCEPTIONS.**
- 11 Wednesday. Award of February degrees.
- 16 Monday. Presidents' Day. **No classes.**
- March** 15–19 Monday–Friday. **Spring holidays.**
- 25 Thursday. Last day to drop individual courses or change grading option.
- 26 Friday. Visitation Day.
- May** 3 Monday. Last day of classes.
- 7–14 Friday–Friday. Examination period. Term ends.
- 19 Wednesday. **Commencement.** Conferring of degrees.

Summer Session 2004

- May** 20–21 Thursday–Friday. Registration.
- 24 Monday. Classes begin. First day to change programs.
- 28 Friday. Last day to drop individual courses or change grading option in first six-week session.
- 31 Monday. Memorial Day. **No classes.**
- June** 1 Tuesday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- 30 Wednesday to Thursday, July 1. Registration for the second six-week session.
- July** 2 Friday. First six-week session ends.
- 5 Monday. Independence Day observed. **No classes.**
- 6 Tuesday. Second six-week session begins. First day to change programs.
- 12 Monday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- 28 Wednesday. Last day to drop individual courses or change grading option.
- August** 2 Monday. Last day to file application or change of name for October degrees. **NO EXCEPTIONS.**
- 13 Friday. Last day of classes.

Fall Term 2004

- August** 31 Tuesday, to Thursday, September 2. Registration for fall term. New Student Orientation.
- September** 6 Monday. Labor Day. **No classes.**
- 7 Tuesday. Classes begin. First day to change programs.
- 17 Friday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- October** 13 Wednesday. Award of October degrees.
- November** 2 Tuesday. Election Day. **No classes.**
- 11 Thursday. Last day to drop individual courses or change grading option.
- TBA Continuing students register for spring term.
- 25–28 Thursday to Sunday. **Thanksgiving holidays.**
- December** 1 Wednesday. Last day to file application or change of name for February degrees. **NO EXCEPTIONS.**
- 6 Monday. Last day of classes.
- 10–17 Friday–Friday. Examination period. Term ends.
- 18 Saturday, to January 17, Monday. **Winter holidays.**

Spring Term 2005

- January** 12–13 Wednesday–Thursday. Registration for spring term.
- 17 Monday. Martin Luther King Day. **No classes.**
- 18 Tuesday. Classes begin. First day to change programs.
- 28 Friday. Last day to change programs.
NO ADJUSTMENT OF FEES FOR INDIVIDUAL COURSES DROPPED AFTER THIS DATE.
- February** 1 Tuesday. Application deadline for fall admission. Last day to file application or change of name for May degrees. **NO EXCEPTIONS.**
- 9 Wednesday. Award of February degrees.
- 21 Monday. Presidents' Day. **No classes.**
- March** 14–18 Monday–Friday. **Spring holidays.**
- 24 Thursday. Last day to drop individual courses or change grading option.
- 25 Friday. Visitation Day.
- May** 2 Monday. Last day of classes.
- 6–13 Friday–Friday. Examination period. Term ends.
- 18 Wednesday. **Commencement.** Conferring of degrees.

Summer Session 2005

- May** 19–20 Thursday–Friday. Registration.
- 23 Monday. Classes begin for first six-week session.
- 30 Monday. Memorial Day. **No classes.**
- June** 29–30 Wednesday–Thursday. Registration for the second six-week session.
- July** 1 Friday. First six-week session ends.
- 4 Monday. Independence Day. **No classes.**
- August** 1 Monday. Last day to file application or change of name for October degrees. **NO EXCEPTIONS.**
- 12 Friday. Last day of classes.

Officers of Administration

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President of the University

Alan Brinkley, Ph.D.

Provost of the University

Gerald D. Fischbach, M.D.

*Executive Vice President for Health and Biomedical Sciences
Dean of the Faculties of Health Sciences and Medicine*

Mailman School of Public Health

Allan Rosenfield, M.D.

Dean and Joseph R. DeLamar Professor of Public Health Practice

Andrew R. Davidson, Ph.D., M.B.A.

Senior Vice Dean

Ngina Lythcott, Dr.P.H.

Vice Dean for Student Affairs

Robert E. Fullilove, Ed.D.

Associate Dean for Community and Minority Affairs

Catherine Murray Dwyer, M.B.A.

Associate Dean for Development and External Affairs

Irwin Redlener, M.D.

Associate Dean for Public Health Advocacy and Disaster Preparedness

Susan Smith, M.P.H., M.P.A.

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Carmen DeLeon

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Ian Lapp, Ph.D.

Assistant Dean for Academic Affairs

Diana Mejia, M.S.

Assistant Dean for Operations Management

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Assistant Director, Financial Aid

Virginia Carolan

Director, Alumni Affairs

Marlyn Delva

Assistant Director, Student Affairs

Tanya Dominguez

Assistant to the Dean, Dean's Office

Urbano T. Garza

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Tanya Leslie

Director, Career Services

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Coordinator, Records and Standards

Brian C. Paquette

Director, Student Affairs

Randee Sachs

Director, Communications

June Saunders

Associate Director, Admissions and Student Information Systems

Moirá Walter

Associate Director, Student Affairs

Professors Emeriti

Rosemary Barber-Madden, B.A., M.P.H., Ed.D.

Clinical Professor Emerita of Population and Family Health

Nicholas Cunningham, M.D.

Professor Emeritus of Clinical Pediatrics and Clinical Population and Family Health

Jack Elinson, B.S., M.A., Ph.D.

Professor Emeritus of Sociomedical Sciences

Anna C. Gelman, M.P.H.

Clinical Professor Emerita of Epidemiology

Sheila A. Gorman, B.S.N., M.P.H., M.Phil., Ph.D.

Clinical Professor Emerita of Health Policy and Management

Leonard C. Harber, B.A., M.D., M.S.

Richard & Mildred Rodebeck Professor Emeritus of Dermatology and Environmental Health Sciences

Sami A. Hashim, M.D.

*Professor Emeritus of Population and Family Health
(Public Health Nutrition)*

Michael Katz, M.D.

*Reuben S. Carpentier Professor Emeritus of Pediatrics and
Environmental Health Sciences (Tropical Medicine)*

Sidney Katz, M.D.

*Professor Emeritus of Geriatric Medicine (in Medicine,
in Sociomedical Sciences, and in the Center for Geriatrics
and Gerontology)*

Lucie S. Kelly, R.N., Ph.D.

Professor Emerita of Nursing and Health Policy and Management

Paul Meier, B.S., M.A., Ph.D.

Professor Emeritus of Statistics and Biostatistics

Stephen N. Rosenberg, M.D., M.P.H.

Clinical Professor Emeritus of Health Policy and Management

Zena A. Stein, B.A., M.A., M.B., B.Ch.

*Professor Emerita of Epidemiology (in Psychiatry and in the
Sergievsky Center)*

Mervyn W. Susser, M.B., B.Ch., Dr.P.H.

*Gertrude H. Sergievsky Professor Emeritus of Epidemiology
(in the Sergievsky Center)*

Frank W. van Dyke, B.A., M.S.

*Professor Emeritus of Health Policy and Management
(Administrative Medicine)*

Robert J. Weiss, B.A., M.D.

*Dean Emeritus and DeLamar Professor Emeritus of Public Health
Practice, Social Medicine and Psychiatry*

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School of Public Health Degree Offerings

Master of Public Health Degree (M.P.H.)

The Master of Public Health degree program is the major professional degree program offered by the School. To receive this degree, a student must satisfy four program elements: a core curriculum, a concentration program, electives, and a practical experience requirement (Practicum). Some programs also require a master's essay. All of these requirements assure that a student acquires sufficient breadth, depth, individual commitment, and practical experience in the field of public health to function competently in a recognized public health role.

MEDICAL BACKGROUND REQUIREMENT

Each M.P.H. student must demonstrate by background, health professional training, or examination a grasp of basic health-related concepts and terminologies. If previous health background is lacking or insufficient, a student must pass a special Medical Background Exam, after a period of self-study.

CORE CURRICULUM

All M.P.H. students must enroll in a series of core courses designed to provide both knowledge of public health skills and a familiarity with the scope of public health disciplines. Core course subjects are biostatistics, epidemiology, environmental health sciences, health policy and management, and sociomedical sciences. These courses, in turn, frequently include elements and examples drawn from other public health disciplines. For example, the core course in environmental health sciences includes sections on population, parasitology, nutrition, and other topics taught by faculty from the School's other departments. The core course in epidemiology depends upon instruction in the biostatistics core course to provide a foundation in vital statistics, and examples are frequently drawn from environmental health incidents.

An intensive effort is made to assure that students attain a high-level working proficiency in biostatistics. In the core course, two levels of biostatistics are offered, the higher level placing more emphasis on the skills of statistical inference. The lower level is the required course. Students may choose to take a placement exam for admission to the higher-level course. Besides vital statistics, the biostatistics core course includes statistical inference and an introduction to biostatistical methodology.

Degree Programs by Department

DEPARTMENT	M.P.H. Professional Degree	M.S. Academic Degree	Dr.P.H. Professional Degree	Ph.D. Academic Degree
Biostatistics (BIO)				
<i>Fall admission only</i>	❖	❖	❖	❖
Clinical Research Methods Track		◆		
General Biostatistics Track	◆		◆	◆
Patient Oriented Research Track		◆		
Theory and Methods Track		◆		
Environmental Health Sciences (EHS)	❖		❖	❖
Environment and Molecular Epidemiology Track	◆		◆	◆
Environment and Molecular Toxicology Track	◆		◆	◆
Medical/Health Physics Track	◆		◆	◆
Epidemiology (EPI)				
<i>Fall admission only</i>	❖	❖	❖	❖
General Public Health (GPH)	❖			
Health Policy and Management (HPM)				
<i>Fall admission only</i>	❖			
Columbia On The Job Part-time Format Track*	◆			
Effectiveness and Outcomes Research Track	◆			
Executive Program in Health Services Management Track**	◆			
Health Care Management Track	◆			
Health Care Policy Track	◆			
Population and Family Health (PFH)				
<i>Fall admission only</i>	❖			
Forced Migration and Health Track	◆			
Reproductive, Adolescent, and Child Health Track	◆			
Sexuality and Health Track	◆			
Sociomedical Sciences (SMS)				
<i>Fall admission only</i>	❖		❖	❖
Aging and Public Health Track	◆			
Health Promotion and Disease Prevention Track	◆			
Health Promotion and Disease Prevention Track Evening Program*	◆			
History and Ethics of Public Health and Medicine Track	◆			◆
Research Track	◆		◆	◆
Sexuality and Health Track	◆			
Urbanism and Community Health Track	◆			

* This is a part-time program.

** Nontraditional, once-a-month weekend format.

Note: All programs are full time unless otherwise indicated.

M.P.H. Core Requirements, 15 Points

<i>Rule: Complete all</i>	Points
P6103 Introduction to Biostatistics	3
P6300 Environmental Health Sciences	3
P6400 Principles of Epidemiology I	3
P6530 Issues and Approaches in Health Policy and Management	3
P6700 Introduction to Sociomedical Sciences	3

Core course waivers and substitution

Waivers in core courses are quite rare. A provision exists for students who demonstrate sufficient competency in a specific core course area to receive a waiver for that particular component, which then permits them to substitute an additional or higher-level course. Students demonstrate proficiency through an examination; however, in individual cases, prior coursework may suffice. Core course syllabi are on reserve in the library to assist students in preparing for a waiver exam.

The Department of Sociomedical Sciences has prescribed, in certain departments of study, public health–related social science courses that students can substitute for the *Introduction to sociomedical sciences* core course.

DEPARTMENTAL SPECIALIZATION

M.P.H. candidates choose specific course tracks or concentrations that provide a recognized sequence of courses leading to a functional public health specialty, such as epidemiology. Each department also establishes course requirements for the programs under their direction. Faculty advisors are assigned to ensure informed choices, reasonable uniformity within concentrations, and optimal utilization of University and School resources. In addition, elective courses, practical experience, and, in some cases, master's essay requirements, complement the core courses. Together, they provide students with additional opportunities for the application of the basic concepts of public health to the solution of community health problems, using the specialty knowledge and skills learned in the department to deal with specific health problems, as indicated by the learning objectives.

In addition, the School provides a formal concentration in General Public Health, which allows qualified students with broad public health interest to cross departmental lines in designing a special concentration. Typically, these students have extensive previous public health training or substantial work experience that enables them to evaluate the courses being offered in order to design an individualized concentration.

ELECTIVES

In order to allow students to explore new areas and develop linkages with topics of special interest, about 20 percent of the points required for the M.P.H. degree are usually reserved for elective courses to be determined by the student and advisor. These electives can be chosen from within the School or elsewhere within the University. Furthermore, students are permitted to register for a tutorial, an individual study under the direction of a professor. These tutorials permit advanced

students to follow areas of interest beyond the scope of the formal teaching program, or to explore in greater depth a substantive or methodological interest. Because of the extensive research activity in the School, tutorials provide a particularly rich educational resource.

PRACTICUM

Master of Public Health students are required to complete a practical experience requirement. In most cases, this requirement takes the form of a one-term (four-month) practicum prior to graduation. Under certain circumstances, particularly for students interested in careers in hospital administration, a full one-year paid residency is recommended. Students who have significant professional background may be permitted to meet this requirement through prior experience, or some combination of current and prior experience. All M.P.H. students must meet a practical experience requirement, which includes obtaining approval from a faculty advisor and a field supervisor for a field assignment, and the successful completion of fieldwork to the satisfaction of both the advisor and supervisor. Clearance for graduation requires evidence of the satisfactory completion of this requirement. In the Departments of Health Policy and Management, and Population and Family Health, the practicum requirement includes a course, taken in conjunction with the practicum, permitting faculty to further monitor student achievement in mastering public health skills.

MASTER'S THESIS

M.P.H. and M.S. students requiring a master's thesis are advised and evaluated by faculty advisors and readers, with attention to the quality of the work and its appropriateness to the area of study.

CULMINATING EXPERIENCE

Students are required to demonstrate their ability to integrate academic studies and professional public health practice, and to show that they can apply the principles, concepts, and skills learned in the classroom to their chosen area of public health practice. The culminating experience takes one of the following four models by which students can demonstrate their ability to synthesize and integrate knowledge acquired in coursework and other learning experiences:

- Capstone course
- Expanded practicum experience requiring participation in a practicum seminar and either an additional integrative paper or presentation
- Supervised consultative experience in conjunction with a capstone seminar
- Master's essay or research project

Master of Science (M.S.)

The Master of Science degree is a specialized degree that gives students opportunities to develop special skills and expertise in the selected subject area. The student must complete a minimum

of 30 academic points. Requirements for coursework, master's essay, and any practical experience needed for the degree vary with the particular program of study. Further information is given under *Biostatistics* (pages 32–33) and *Epidemiology* (page 50).

Doctor of Public Health (Dr.P.H.)

The Doctor of Public Health degree programs are designed for professionals wishing to prepare for teaching, research, or advanced administrative positions in a major area of specialization within the broad field of public health.

To assure that all Dr.P.H. students have an understanding of the areas of knowledge and skills and experience basic to public health, all candidates for the Dr.P.H. must have earned the M.P.H. or its equivalent (defined as another master's degree appropriate to the public health field), and have fulfilled the core course requirements for the School's M.P.H. degree program. The degree is offered through the following departments: Biostatistics (see page 33), Environmental Health Sciences (see page 41), Epidemiology (see page 50), and Sociomedical Sciences (see page 83). The Department of Health Policy and Management collaborates with Sociomedical Sciences on the Dr.P.H. and Ph.D. programs for students with interests in health policy, economics, or political science.

The Dr.P.H. degree calls for completion of an approved program of study totaling no fewer than 40 doctoral points of credit beyond the M.P.H. level, with individual programs reviewed by departments. At a minimum, the candidate is required to spend the equivalent of two terms of full-time coursework (30 points) in residence. Upon completion of coursework, a student is permitted to register for 2 of the required 10 points of doctoral research instruction before passing the qualifying examinations. These examinations are administered by the department or program in which the student is working. The student may then register for the additional required points of doctoral research instruction credit while developing, preparing, and successfully defending an acceptable doctoral dissertation that presents the results of independent and original work. The Dr.P.H. degree is awarded upon completion of doctoral coursework after the master's degree, passing of a qualifying examination, and preparation and defense of an original scholarly investigation.

The completion of doctoral study can be expected to take at least three full-time academic years and, in most cases, extends beyond that. There is a University time limit of seven years from the date of first registration as a doctoral student until completion of all requirements.

RESEARCH PROPOSAL, COMPREHENSIVE EXAMINATION, AND DISSERTATION DEFENSE

Doctoral students receive advice and monitoring in the preparation and scheduling of research proposals, comprehensive examinations, and the final dissertation defense, which faculty committees review carefully.

Doctor of Philosophy (Ph.D.)

Interdisciplinary Doctor of Philosophy degree programs are under the academic supervision of subcommittees of the Graduate School of Arts and Sciences, which bring together faculty from Public Health, Arts and Sciences, and other appropriate schools and departments of the University. The degree is offered through the following departments: Biostatistics, Environmental Health Sciences, Epidemiology, and Sociomedical Sciences.

Requirements for admission to the Graduate School of Arts and Sciences include a bachelor's degree with at least 90 points of credit in the liberal arts and sciences. Application to the programs is through the Graduate School Admissions Office on the Morningside campus. Applicants may call 212-854-4737 and may also download a Ph.D. application from the Web site (<http://www.columbia.edu/cu/gsas/download.html>).

General information on these Ph.D. programs is contained in the *Bulletin of the Graduate School of Arts and Sciences*. However, applicants are strongly encouraged to contact the Departments of Biostatistics, Environmental Health Sciences, Epidemiology, or Sociomedical Sciences in the Mailman School of Public Health for specific information on admissions criteria and program requirements. Within each department, requirements for the Ph.D. degree, while similar to the Dr.P.H. degree, vary somewhat. Additional information is given in the individual department chapters—*Biostatistics* (pages 33–34); *Environmental Health Sciences* (pages 41–42); *Epidemiology* (pages 51–52); *Sociomedical Sciences* (page 83)—and in each department's student handbook.

About Interdepartmental and Dual Degree Programs

MSPH has traditionally had a program in General Public Health (GPH) where students with extensive clinical or public health experience who required coursework in several departments were able to customize a program with their advisor. (See pages 56–57 for a complete description of the GPH program.)

As the field of public health increasingly embraces complex issues with multiple disciplinary approaches, it is becoming necessary to offer current students a wider variety of study options. Beginning in the 1970s, the School developed dual degree programs with nine other Columbia schools, and at the time of printing of this Bulletin, we are developing another dual degree program with the Law School. Information on the new program will be on the MSPH Web page, when the program is ready to accept students, at <http://www.mailman.hs.columbia.edu/index.html>.

New program offerings include Sexuality and Health, which is being taught across the Department of Population and Family Health and

the Department of Sociomedical Sciences (for more information, see pages 72 and 82 and the Sexuality and Health Web site: <http://cait.cpmc.columbia.edu:88/dept/sph/sexhealth-track.html>).

Beginning in 2004, programs in Global Health will be offered that encompass several departments (see page 24 for more information).

Dual Degree Programs

The Mailman School fosters a multidisciplinary approach to public health through master's-level dual degree programs, which are offered in conjunction with other graduate schools of the University. These dual degree programs provide Mailman School students with an opportunity to tap into the full resources of the University and to gain knowledge, skills, and perspectives in fields outside of public health. The School currently has nine dual degree programs with the College of Physicians & Surgeons, School of Dental and Oral Surgery, School of Nursing, Programs in Occupational Therapy, School of Business, School of International and Public Affairs, School of Social Work, and Graduate School of Architecture, Planning, and Preservation, as outlined in the chart below.

APPLICATION

Applicants seeking admission to dual degree studies must apply separately to each of the two collaborating schools and must meet the admissions requirements of each. Once both schools grant admission to their individual degree programs, the student may begin an integrated dual degree program. Students considering dual degree programs are strongly encouraged to apply to both schools as early as possible. Except where otherwise noted, students may apply to both schools at the same time or may apply to the second school after admission to the first school.

The Graduate Record Examination is required for admission to the Mailman School of Public Health, but other graduate entrance exam scores are accepted when required for other degree programs.

REGISTRATION AND TUITION

Enrollment in a dual degree program requires special attention and planning to ensure that all academic and tuition payment requirements are met in a timely fashion. Students register in only one school at a time (school of primary registration) and pay tuition to that school. Students add flexibility to their schedules by combining studies from both schools in any semester. Registration continues in either school until all academic requirements (at the Mailman School: coursework, practicum, culminating experience, and Medical Background Exam) have been met and the student has registered and paid for the number of terms or points through each school, as each requires. Advisors are appointed in each school and should be consulted as soon as the student begins studies so that an appropriate balance and time sequence are achieved.

The student's financial aid award is made through the school of primary registration. Students who apply for aid are encouraged to plan their registration well in advance for each academic year and to consult with financial aid officers, in both schools if necessary, well before the beginning of the academic year to ensure that the school in which they plan to register covers them in each semester.

Dual degree students are strongly advised to consult with their academic advisors and the registrar's office each term to ensure they are meeting the academic and tuition requirements for their designated degrees.

Students pursuing the M.P.H. degree are required to take the core courses in Biostatistics, Environmental Health Sciences, Epidemiology, Health Policy and Management, and Sociomedical Sciences, as well as other courses as required by the student's department.

CURRICULUM ACCOMMODATIONS

The School of Public Health requires a practicum and a culminating experience. Each department has developed unique criteria for fulfilling these requirements. It is the student's responsibility to know what is required in their MSPH department. Dual degree students

Dual Degree Programs Offered in Conjunction with Other Schools of Columbia University

SCHOOL	DEGREE	MOST COMPATIBLE MSPH DEPARTMENTS
College of Physicians & Surgeons	M.D./M.P.H.	BIO, EPI, GPH, HPM, PFH
School of Dental and Oral Surgery	D.D.S./M.P.H.	BIO, EHS, GPH, HPM
School of Nursing	M.S.N./M.P.H.	EHS, EPI, GPH, HPM, PFH, SMS
Occupational Therapy	M.S.O.T./M.P.H.	GPH, HPM, PFH, SMS
School of Business	M.B.A./M.P.H.	BIO, EHS, EPI, GPH, HPM, PFH
School of International and Public Affairs	M.I.A./M.P.H.	EHS, EPI, GPH, HPM, PFH, SMS,
School of International and Public Affairs	M.P.A./M.P.H.	GPH, HPM
School of Social Work	M.S.W./M.P.H.	GPH, HPM, PFH, SMS
Graduate School of Architecture, Planning, and Preservation	M.S.U.P./M.P.H.	EHS, HPM, GPH

are required to register for courses earning a letter grade or pass/fail, where applicable. Each dual degree program has specific residency requirements that are included in the descriptions below.

Dual degree students are required to complete the Medical Background Exam requirement, except where their other degree meets the requirement for clinical knowledge.

Public Health and Medicine

This dual degree program, under the direction of the Mailman School and the College of Physicians & Surgeons, is intended for Columbia University medical students who have an interest in the social and community aspects of medical care and health management. Its objective is to prepare physicians for an expanding range of opportunities and roles in health and medical care. In addition to preclinical and clinical medical training, students gain substantive knowledge of the health care delivery system and the technological, social, and political forces contributing to patterns of illness and health care. Graduates of this dual program are prepared for careers that combine clinical practice with research and administration in public or private sector health care delivery and community health improvement. Students take 35 points in Public Health, of which 30 points must be registered and paid in Public Health, in addition to meeting all requirements for the M.D. degree. Registration and scheduling patterns, and the overall length of the dual program, vary among individual students. In addition to the program described above, the Josiah Macy, Jr. Foundation provides funding for the Macy Scholars M.D./M.P.H. program. It offers a fully funded fifth year for medical students, to be taken at the end of the third year of medical school. A maximum of twelve students per academic year are selected to complete the requirements for the M.P.H. degree in one calendar year. For additional information, see <http://www.mailman.hs.columbia.edu/hpm/macy.html>.

Public Health and Dentistry

This dual degree program is organized and directed by the Mailman School and Columbia University's School of Dental and Oral Surgery. In addition to clinical dentistry, students gain broad insights into the complexities of the evolving health care delivery system in the United States and develop the skills to assume roles as implementers and leaders within that system. The program prepares interdisciplinary professionals who can be effective as practitioners and interpreters at the interface between dentistry, other health disciplines, and the health system. Courses in Dental Community Health meet some requirements toward the M.P.H. degree. Students take 35 points in Public Health, of which 30 points must be registered and paid in Public Health, in addition to meeting all requirements for the D.D.O.S. degree.

Public Health and Nursing

The Mailman School and the School of Nursing offer a dual program for the M.P.H. degree and the M.S. degree in Nursing. This interdisciplinary program prepares nurse practitioners or clinical specialists to function effectively as public health practitioners helping to interpret, plan, and administer programs. This program is directed toward

nurses with at least one year of appropriate experience who expect to be practicing clinicians and at the same time hold responsible positions in administration, education, research, or policy, or who plan a career in clinical nursing, but desire to enhance their clinical knowledge with a related public health concentration. The minimum number of points of credit required is 75. Distribution of points between the two schools varies with the clinical track selected, but students complete at least 30 points while enrolled in each school. Both degrees must be awarded simultaneously.

Public Health and Occupational Therapy

The Mailman School and Programs in Occupational Therapy of the Faculty of Medicine offer a dual program for the M.P.H. and M.S. in Occupational Therapy. The program is designed to prepare occupational therapists for leadership roles in shaping the health policies of America's increasingly complex health care delivery system. An understanding of public health principles helps students to transfer their clinical skills to community-based services and to assume policy and administrative positions in school systems, businesses, and national and state agencies concerned with health policies and practices. The dual degree program interfaces with two programs in Occupational Therapy: the professional (entry) level and the post-professional (advanced) level. The M.S./M.P.H. program is an option for students at both levels, on a full- or part-time basis. The total number of points of credit required for the dual degree is 90 for entry level (professional), including 38 while enrolled in Public Health; and 72 for the advanced level (postprofessional) occupational therapy program, including 40 while enrolled in Public Health.

Public Health and Business

This program offers a challenging course of study in the social, economic, and political facets of public health and health administration practices, along with rigorous quantitative training in management. Combining the M.P.H. and the Master of Business Administration (M.B.A.), the program is designed to prepare individuals for administrative positions in the health care industry, including hospitals, consulting firms, etc., that require sound management and a broad knowledge of public health. The total number of points required is 80, with 35 points while enrolled in Public Health and 45 in Business.

Public Health and International Affairs

The purpose of the dual degree program combining the M.P.H. and the Master of International Affairs (M.I.A.) is to provide training for careers in international and national agencies involving health policy analysis and administration. The emphasis of the School of International and Public Affairs on political and economic aspects of various world regions complements many areas of public health. The minimum number of points required is 75, with at least 30 points of registration in each school.

Public Health and Public Administration

This dual degree program, with the School of International and Public Affairs, combines the M.P.H. and the Master of Public Administration (M.P.A.). The purpose of this program is to train students for careers in health policy analysis and administration, as well as for positions in local, state, and federal governments

and in the private sector. The total number of points required is 75, with a minimum of 30 points while enrolled in each school.

Public Health and Social Work

The nature and extent of today's health problems, and the alternatives available for their solution, involve political, economic, community, organizational, behavioral, and other social issues. This dual degree program with the School of Social Work combines the M.P.H. and the Master of Social Work (M.S.W.). It permits students to develop orientation and skill in both social work and public health. Generally, students enrolled as degree candidates in either school who wish to apply to the dual program should do so no later than the end of the second term of registration. The program of study integrates the fundamentals of professional social work practice with a public health perspective. The total number of points required is 90, with 45 while enrolled in Public Health and 45 while enrolled in Social Work.

Public Health and Urban Planning

The Mailman School and the Graduate School of Architecture, Planning, and Preservation offer a dual program for the degrees of M.P.H. and Master of Science (M.S.) in Urban Planning. The primary objective of this dual degree program is to prepare individuals for planning positions in health systems agencies, various units of government, and the private health sector. The total number of points required is 80, with 35 points while enrolled in Public Health and 45 while enrolled in Urban Planning.

Interdepartmental Program Offerings

SEXUALITY AND HEALTH

This program is the first of its kind to provide public health students with the conceptual and practical skills necessary to identify, analyze, and address health issues connected to sexuality within a global context. These skills include the design, implementation, and evaluation of policies, programs, and advocacy efforts to enhance sexual health. Program graduates will be likely to work in organizations that address sexual health exclusively or as part of a broader agenda. The Sexuality and Health track is an interdepartmental program, jointly created and delivered by the Departments of Population and Family Health and of Sociomedical Sciences. For common and department-specific degree requirements, see the Sexuality and Health track's Web site: <http://cait.cpmc.columbia.edu:88/dept/sph/sexhealth-track.html>.

GLOBAL PUBLIC HEALTH

The Mailman School of Public Health, Columbia University, is pleased to announce the initiation of an interdepartmental academic M.P.H. track and an MSPH Certificate program in Global Public Health. The M.P.H. track is anticipated to begin in fall 2004 and the Certificate program in summer 2005.

The health of populations in developing countries is the result of a complex interaction among local, regional, and global forces. The Global Health program will examine the complex relationships that impact on the public's health through a series of courses, seminars, symposia, and an obligatory field experience. Throughout the program, the studies and the activities of both faculty and students will focus on the promotion of human rights and on finding ethical solutions to the difficult health problems of the contemporary world.

Upon satisfactory completion of these two global health curricula, graduates will be able to:

- improve the health of populations in various regions of the world by making effective decisions guided by the findings of appropriately selected and interpreted research in epidemiology, biostatistics, environmental health sciences, demography, maternal and child health, and the social/behavioral sciences;
- advance the health of populations through the development of effective policies and programs;
- communicate and collaborate effectively with individuals, communities, and institutions, utilizing appropriate methods informed by the dynamics of diversity and power;
- lead effective advocacy efforts that promote the public's health; and
- create opportunities that enable the empowerment of individuals and communities to affect their own health.

Application to the 45 points of credit academic program leading to an M.P.H. degree, with a strong emphasis on Global Public Health, is through one of our academic departments. It is expected that the collaboration between the Global Public Health offerings and the academic departments of the Mailman School will better ensure that graduates will demonstrate knowledge of a global framework for analysis and action, with an intellectual foundation in one of the MSPH's academic departments.

Application to our 18 points of credit certificate program in Global Public Health will have a different admissions process that is being planned as this Bulletin goes to press.

Admission

Details of admission application processes can be found on the MSPH Web site: <http://www.mailman.hs.columbia.edu/applymph.html>.

For further information, contact Professor Ronald Waldman, M.D., rw178@columbia.edu or visit <http://www.mailman.hs.columbia.edu/applymph.html>.

Nontraditional Program Offerings

EXECUTIVE M.P.H. PROGRAM

The School has one degree program offered in a nontraditional format, the Executive M.P.H. Program. Established in 1990, the Executive M.P.H. Program was created to meet the needs of employed health professionals with at least five years' experience in health

care, who are working in the public and private sectors, and who wish to remain employed while studying. The program is highly successful and has attracted participants from such diverse sectors as medicine, dentistry, nursing, social work, and business. A description of the Executive M.P.H. program is in the Health Policy and Management chapter on pages 62–63 or online at <http://www.mailman.hs.columbia.edu/hpm/emph/index.html>.

COLUMBIA ON THE JOB (COTJ)

The Columbia On the Job part-time program permits people employed as entry-level managers and policy analysts to complete requirements for the M.P.H. degree in 28 months. Approximately 20 students employed in health care settings will go through the 28-month program as a distinct cohort. During the spring and fall terms students attend class two evenings a week and on an occasional weekend. During each of the two summer sessions there is a two-week Summer Institute that meets 9 to 5, Monday to Friday. Each Institute offers two 3-point courses. The schedule for each 3-point course provides a minimum of 36 faculty-student contact hours, plus three hours for scheduled group activities (project time) and three hours for exams or project presentations. More information on COTJ is available on page 62 or online at: <http://www.mailman.hs.columbia.edu/hpm/HanPartTime.htm>

RESIDENCY PROGRAMS

The School offers academic training for physicians in a number of residency programs in the New York area. In a collaborative effort, the New York City Department of Health and the School of Public Health Residency Training Program have been preparing physicians for careers in public health since 1950. In addition, the School has established relationships with other preventive medicine residency programs, permitting residents to pursue concurrently a master's degree in public health. These include residency programs located at the State University of New York (SUNY) at Stony Brook and the Joan and Sanford I. Weill Medical College of Cornell University.

Some medical residency programs at NewYork-Presbyterian encourage their students to take public health courses. These students must apply for admission as special students before being permitted to register for courses.

Academic Programs

GENERAL INFORMATION

Although the subjects dealt with in the programs described in this section are related, the educational objectives, admissions criteria, and academic requirements differ significantly among departments. While all departments offer master's level study, several also train doctoral candidates. Primary responsibility for developing the programs of study rests with the faculty, although student participation in curriculum planning and evaluation is considered essential.

Course Information

GENERAL

Courses are reviewed and new courses approved throughout each academic year. Courses are grouped in this Bulletin under department or program to provide a general guide to the perspective from which the course is taught.

The University reserves the right to withdraw, add to, or modify the courses of instruction or to change the instructors or scheduling at any time. Course requirements for programs provided in this Bulletin are suggested programs. Students, in consultation with their academic advisor supplemented by the department student handbook, select the courses that meet their needs. Therefore, the sample programs should be considered only as a guide.

KEY TO COURSE NUMBERS

Each course number consists of the capital letter "P" followed by four digits.

The first digit indicates the level of the course, as follows:

- 6 Master's level course
- 8 Advanced master's or doctoral level course
- 9 Doctoral level course or seminar

The second digit indicates the subject area of the course:

- 0 General public health
- 1 Biostatistics
- 3 Environmental health sciences
- 4 Epidemiology
- 5 Health policy and management
- 6 Population and family health
- 7 Sociomedical sciences
- 9 Doctoral research

The last two digits identify that particular course.

TERM DESIGNATIONS

The academic year is divided into three terms, fall, spring, and summer. Fall and spring courses meet for 14 weeks, usually with one class meeting per week. The summer term is composed of two intensive summer sessions of six weeks each. In the fall and spring, a few courses are given for quarter (half-term) periods.

POINTS OF COURSE CREDIT

The number of points that a course carries appears after the title of the course in the sections that follow. Most courses carry 3 points.

TUTORIALS

Students may have an interest in an area or specific topic that is not addressed in the curriculum. A tutorial (independent study), which is a learning contract between a student and faculty member to explore an area of mutual concern, is intended to provide opportunities for specialized study. Tutorials are offered by every department and are available for 1 or more points per semester. Before registering for a tutorial, the student must first obtain the approval of the sponsoring faculty member.

Beginning with *Biostatistics* on page 29, this Bulletin contains a description of the total curriculum of each department/program. However, not all courses are given every year. The specific courses offered are listed in a course schedule prepared and distributed each term through the Office of Student Affairs (OSA) and can be found online by selecting "Student Affairs" on the School's home page.

REGISTRATION

After getting program approval from their academic advisor, and course permission from departments where appropriate, students register for Public Health courses by touch-tone telephone or online at the beginning of each term. Registration dates appear in the *Academic Calendar* in this Bulletin; the Office of Student Affairs will alert all students to any changes in these dates.

International students requiring student visas are required to pursue a full-time course of study during the academic year. For more information, visit <http://www.columbia.edu/cu/issa/admit> and <http://www.columbia.edu/cu/issa/incoming/>.

All students are asked to give Social Security numbers when registering in the University. International students will have one term in which to secure a valid U.S. Social Security number. Instructions for obtaining a Social Security number are available in the Office of Student Affairs.

Students who are not citizens of the United States and who need authorization for special billing of tuition and/or fees to foreign institutions, agencies, or sponsors should bring a copy of the sponsorship letter to the Office of Student Administrative Services, 1-141 Black Building. Special billing authorization is required of students whose bills are to be sent to a third party for payment.

Cross-registration

Registration for courses taken in other schools of the University is done in person during the change-of-program period. School/instructor permission, as well as advisor approval, is required for each course. Completed cross-registration or program change forms must be brought to the Office of Student Administrative Services, 1-141 Black Building, during the change-of-program period. Courses taken at Teachers College (TC) will be charged at the TC tuition rate.

Students registered through other graduate schools of Columbia University must get permission of the instructor and the Dean of Students at MSPH by completing a Cross-Registration Form, which is available in OSA. ***Cross-registration must be done in person during the change-of-program period.*** Cross-registrants are limited to two courses per term. These courses may not be used as transfer credits toward a public health degree. Exceptions to this policy are (1) dual degree students who have previously registered in the School of Public Health; (2) Ph.D. students in Biostatistics, Environmental Health Sciences, Epidemiology, and Sociomedical Sciences; and (3) a student who has been given prior permission by the Dean of Students.

CHANGES IN PROGRAMS OF STUDY

After the change-of-program period, students will need approval from both their advisor and the Office of Student Affairs to drop courses. Approved forms must be brought to 1-141 Black Building to be processed. ***Program changes must be made in person.*** For individual courses dropped after the last day of the change-of-program period, no adjustment of tuition will be made. There is also a date in the *Academic Calendar* after which courses may not be dropped.

Failure to attend classes or unofficial notification to the instructor does not constitute dropping a course and will result in a grade of UW (unofficial withdrawal). Courses can be dropped only through the change-of-program procedure described above.

Practicum and Doctoral Instruction Registration

PRACTICUM (PRACTICAL EXPERIENCE)

The practical experience requirement for the M.P.H. degree is generally equivalent in duration to one term of full-time work. It may take a variety of forms: an administrative residency in an institution or agency (usually for a period exceeding one term); participation in an ongoing research or evaluation project; or designing and conducting an independent study. Arrangements are made on an individual basis in consultation with faculty advisors in the student's academic department. Students are expected to submit written reports at the conclusion of the practicum. While completing the practicum

a student may register for *P0001* (0 points) and is charged tuition at the 1-point rate.

Students who have significant professional background may be permitted to meet this requirement through prior experience or some combination of current and prior experience. Students must consult with their department's practicum coordinator to determine if the requirement has been met. Written notification is sent to the Office of Student Affairs.

DOCTORAL RESEARCH INSTRUCTION

Candidates in the Dr.P.H. degree program must register for and complete 10 points of *P9980 Doctoral research instruction* before submitting the dissertation. In exceptional circumstances, and with the recommendation of an advisor and permission of the Dean's Office, points earned in a carefully selected course may be counted toward the doctoral research instruction requirement.

Registration in *P9980* may begin only after completion of the course requirements for the degree. Only 2 of these points may be taken before satisfactory completion of the qualifying examinations. Candidates may register for 1 or more doctoral research points each term until 10 points have been completed. Registration permits the student to have access to library and other University resources while working on the dissertation.

Grades

The School uses a letter grade system. Grades are: **A, B, C**, with + and - as applicable, **F, IN** (Incomplete), **R** (Registered), and **UW** (Unofficial Withdrawal). A pass/fail (**P/F**) grade option is available in some circumstances. Grades are defined as follows:

Excellent:

- A+** Reserved for highly exceptional achievement.
- A** Excellent. Outstanding achievement.
- A-** Excellent work, close to outstanding.

Good:

- B+** Very good. Solid achievement expected of most graduate students.
- B** Good. Acceptable achievement.

Fair:

- B-** Acceptable achievement, but below what is generally expected of graduate students.
- C+** Fair achievement, above minimally acceptable level.

Minimally Acceptable:

- C** Fair achievement, but only minimally acceptable.
- C-** Very low performance. The records of students receiving such grades are subject to review by the Academic Standards Committee.

Failure:

- F** Failure. Course usually may not be repeated unless it is a required course. When the course is required, the student will reregister and obtain a satisfactory grade. The previous grade remains on the transcript.

Registered:

- R** The grade of **R** (Registered) credit is automatically assigned for *Doctoral research instruction (P9980)* and is an option for auditing other courses. Except for *Doctoral research instruction*, courses graded **R** do not count toward the course points needed to meet degree requirements. All **R** credit courses require full tuition payment.

Incomplete IN and Unofficial Withdrawal UW:

There is no automatic grade of "Incomplete" (IN). *Students are expected to complete ALL course assignments and exams on schedule by the end of a semester.*

An Incomplete (**IN**) may be given only when a student has met the attendance requirement but certain course assignments have not been completed for reasons satisfactory to the instructor. The instructor may grant an extension, usually for a specified period of time, and usually not more than several weeks. Unless there is notification of change of grade from **IN** to a letter grade within one year from the end of the semester of registration, the **IN** will automatically be converted to Unofficial Withdrawal (**UW**), defined as "student did not complete attendance and/or assignments, but failed to withdraw."

Pass/Fail P/F Option:

Some courses, at the discretion of the instructor and according to course content, are graded only on a pass/fail (**P/F**) basis. The **P/F** option may also be elected by students in a few selected courses (not to exceed 15 points total for M.P.H. students) with permission of the instructor and the student's advisor. This option was designed to permit students to register for credit in courses relevant to, but outside of, their area of study. **The pass/fail option is NOT available for core courses and is not allowed for required department track courses.**

In addition to the letter grade, qualitative forms of evaluation to assist the student in the learning process include the instructor's written or verbal comments on papers, exams, and presentations, dealing with the strengths and weaknesses of the performance, and suggestions for improvement.

REPORTING OF GRADES

Students may obtain their grades either by phone (212-854-7373), using the Personal Identification Number (PIN) assigned to them by the University, or online by accessing Student Services On-Line. Students' academic records are also available to the faculty advisors for counseling purposes. Grades of **F** (Fail) or **IN** (Incomplete) are reported to the Academic Standards Committee of the School.

GRIEVANCE PROCEDURE

Questions about a course grade should be discussed first with the course instructor and then with the program head or department Chair, if necessary. In the case of a serious unresolved disagreement between a student and instructor concerning grades, an ad hoc committee of three faculty members is appointed by the Dean of Students. The committee reviews the case with the instructor, and with the Dean when appropriate.

Academic Progress

Normally, full-time study for the M.P.H. or M.S. degree is completed in one and one-half to two years. Full- and part-time students are expected to complete all degree program requirements within five years.

As a general rule, good academic progress for a student taking coursework can be defined as completing no less than 9 points of coursework within a year. Progress of master's students engaged in completing a practicum or master's essay is determined by their academic department.

Good academic progress for doctoral students is determined by their academic departments. The University allows seven years for completing a doctoral degree program. Students not registered for three or more terms lose their active student status. Before being allowed to register again, these students must contact the Office of Student Affairs for reinstatement. Students who have not registered for two or more years must complete an application for readmission before being allowed to continue their studies.

A student who will not be registering for more than three terms is expected to file an official Registration Withdrawal/Leave of Absence Form, which must be signed off by the Dean of Students or a designee and the Office of Student Financial Services and filed with the Office of Student Administrative Services located at 1-141 Black Building. Students who have not registered for more than three terms must file an Application for Readmission packet in the Office of Student Affairs and must receive permission to register for courses.

ACADEMIC STANDING

Students are expected to maintain satisfactory academic standing at all times. A student's work in individual courses and in the program as a whole is reviewed regularly by the Dean of Students and the student's faculty advisor. As described earlier in this chapter under Grades, earning grades of B- or better is considered acceptable.

In cases where a student's academic standing is in question, he or she is sent written notification as follows:

Department approval to register—Students carrying two grades of IN, or a recent grade of UW, or a C in a core course, or two grades of C will be notified that they must discuss their academic progress with their advisor, and further registration will require the advisor's approval.

Dean's Hold—Students with three or more grades of IN, or one or more grades of F, or three or more grades of C will have their registration placed on Dean's Hold. In serious cases of unsatisfactory performance, a Dean's Hold may lead to dismissal from the School upon recommendation by the department and review by the Academic Standards Committee. Students placed on Dean's Hold may be permitted to continue study by meeting

conditions specified by the department and receiving (1) formal written approval of the department and (2) approval by the School's Academic Standards Committee.

Doctoral students will be reviewed within their departments regarding their academic standing and will be notified of unsatisfactory performance.

Honor Code

In 1978, the School adopted an Honor Code relating to student/faculty responsibilities in assuring academic integrity. Copies of the Honor Code are distributed to all new students upon acceptance to the School and again when they first register, and are available at all times in the Office of Student Affairs.

The code describes the School's standards for coursework, assignments, and examinations. In all academic work, students must submit original material only; provide proper citations when paraphrasing or quoting from other sources; and discuss with the instructor in advance any plan to depart from these standards—for example, seeking editorial assistance or submitting the same or similar material used to meet requirements for another course.

The Honor Code is reviewed periodically by an ad hoc committee composed of faculty, staff, and students. The work of this committee is reported to the School community.

Public health practice and research require the highest degree of responsibility and integrity. Violations of the Honor Code are viewed very seriously by the School.

Requests for Transcripts and Certifications

The amended Family Educational Rights and Privacy Act (FERPA) of 1974 prohibits release of educational records without the written consent of the student (for certain exceptions and further restrictions, consult *FACETS*, the University student handbook). Students and alumni may obtain an official transcript of their academic record at Columbia University by writing to Student Administrative Services, Columbia University, Room 141, Black Building, Unit 45, 650 West 168th Street, New York, NY 10032, Attention: Transcripts; or by sending a fax to 212-305-1590.

You may also order transcripts in person at Room 141 of the Black Building on the Health Sciences campus, where office hours are 9 a.m.–4:30 p.m., Monday–Friday. The following information must be included in the request: current and former names; Social Security number; schools attended and dates of attendance; degrees awarded and dates awarded; number of transcripts desired and complete

address for each; your current address and telephone number; and your signature authorizing the release of your transcript. Currently enrolled students may order transcripts for themselves and for colleges and universities via the Student Services page on the World Wide Web at <http://www.columbia.edu/cu/students/>.

There is no charge for issuing transcripts; however, all students pay a one-time transcript fee of \$45 upon their first registration at the University. The normal processing time for transcripts is two to three business days. If you mail in your request for a transcript, you should allow several additional days for delivery to and from the University.

Certifications of enrollment and degrees may be ordered by mail, in person, or on the Student Services page on the Web as described above. When requesting a certification by mail, include the notation "Attention: Certifications" on your envelope. Certifications are provided while you wait if you come to the Black Building to request them. There is no charge for certifications.

Graduation

DEGREE APPLICATION

Degrees are awarded three times a year—in October, February, and May. A candidate for a Public Health degree must file an application, which requires the signature of his/her academic advisor. The application form is available from the Office of Student Affairs. Before submitting the application, students should conduct a degree audit with their academic advisor using the graduation checklist as a guide. The last day to file for each degree is:

August 1—October degree
December 1—February degree
February 1—May degree

Applications received *after* these dates will not be considered for that conferral date.

If the student is unable to complete degree requirements by the conferral date for which he or she has made application, the student must file another application. However, students who previously filed and did not graduate must meet all requirements before application for graduation will be accepted.

GRADUATION CEREMONIES

The University and the School hold Commencement exercises in May for all those who have earned their degrees during the current academic year. In early spring, all the October and February graduates, and all students anticipating a May degree, will be sent information directly in preparation for these events.

BIostatistics

Degrees offered:

M.P.H.	31	M.S., Patient Oriented Research	33
M.S., Theory and Methods	32	Dr.P.H.	33
M.S., Clinical Research Methods	32	Ph.D.	33

Department of Biostatistics

722 West 168th Street, 6th Floor

New York, NY 10032

212-305-9398

Web Site: <http://www.mailman.hs.columbia.edu/biostat/>

Department Chair: Bruce Levin, Ph.D.

Department Coordinator: Leslie McHale

Faculty

DEPARTMENT CHAIR

Bruce Levin, *Professor of Biostatistics (in the Sergievsky Center)*
B.A., Columbia, 1968; M.A., Harvard, 1972; Ph.D., 1974

PROFESSORS

Melissa D. Begg, *Professor of Clinical Biostatistics*
B.S., Fairfield, 1985; Sc.D., Harvard, 1989

William T. Friedewald, *Clinical Professor of Medicine, Biostatistics, and Epidemiology*
B.S., Notre Dame, 1960; M.D., Yale, 1963

David Greenberg, *Professor of Clinical Biostatistics (in Psychiatry) (in the Genome Center)*
B.S., Antioch, 1971; Ph.D., Washington, 1976

Susan E. Hodge, *Professor of Clinical Biostatistics (in Psychiatry)*
B.A., Antioch, 1968; D.Sc., Washington, 1976

Shaw-Hwa Lo, *Professor of Biostatistics (also Statistics)* B.S., National Taiwan, 1975; M.A., California (Santa Barbara), 1978; Ph.D., California (Berkeley), 1981

Myunghee Cho Paik, *Professor of Biostatistics*
B.S., Seoul National, 1981; M.S., Pittsburgh, 1984; Ph.D., 1987

Wei-Yann Tsai, *Professor of Biostatistics*
B.S., National Chung-Kung (Taiwan), 1974; M.S., New Brunswick, 1978; Ph.D., Wisconsin (Madison), 1982

ASSOCIATE PROFESSORS

Howard F. Andrews, *Associate Clinical Professor of Neuroscience (in Psychiatry) (in the Sergievsky Center) (in Biostatistics)*
B.A., Richmond, 1971; Ph.D., Rutgers, 1977; M.S., Columbia, 1986

Marianthi Markatou, *Associate Professor of Clinical Biostatistics*
B.Sc., University of Patras (Greece), 1981; M.A., Rochester, 1984; Ph.D., Pennsylvania State, 1988

Robert T. Ogden, *Associate Professor of Biostatistics (in Psychiatry)*
B.S., Texas A&M, 1988; Ph.D., 1994

Eva Petkova, *Associate Clinical Professor of Biostatistics (in Psychiatry)*
M.S., Sofia, 1982; Ph.D., Pennsylvania State, 1992

Ming X. Tang, *Associate Professor of Clinical Biostatistics (in the Sergievsky Center)*
M.A., Hunter (New York), 1985; M.Phil., Columbia, 1989; Ph.D., 1990

Christine Waternaux, *Associate Professor of Clinical Biostatistics (in Psychiatry)*
Maitrise, Paris, 1971; Ph.D., Yale, 1975

Priya J. Wickramaratne, *Associate Professor of Clinical Biostatistics (in Psychiatry)*
B.S., London, 1968; M.S., Stanford, 1970; Ph.D., Yale, 1984

ASSISTANT PROFESSORS

Emilia Bagiella, *Assistant Professor of Biostatistics*
Laurea, LaSapienza, 1985; M.S., Columbia, 1993; Ph.D., 1997

Ying Kuen K. (Kenneth) Cheung, *Assistant Professor of Biostatistics*
B.S., Wisconsin (Madison), 1995; Ph.D., 2000

Manisha Desai, *Assistant Professor of Clinical Biostatistics*
B.A., Boston, 1993; M.A., 1993; Ph.D., Washington, 2000

Yunling E. (Evelyn) Du, *Assistant Professor of Clinical Biostatistics*
B.S., Science & Technology (China), 1993; Ph.D., Pennsylvania State, 1999

Martina Durner, *Assistant Professor of Biostatistics*
M.D., Free University of Berlin, 1986; Dr.med., 1988

Prakash Gorrochurn, *Assistant Professor of Biostatistics*
B.S., Monash University, 1994; Ph.D., 1999

Wei-Te Hung, *Visiting Assistant Professor*
M.D., Chung-Shan Medical (Taiwan), 1982; M.O.H., Harvard, 1989

Zhezhen Jin, *Assistant Professor of Biostatistics*
B.S., Nankai University, 1989; M.S., 1992; M.A., Southern California (Los Angeles), 1994; M.P.H., Columbia, 1998; Ph.D., 1998

Xinhua Liu, *Assistant Professor of Clinical Biostatistics (in Psychiatry)*
Ph.D., Johns Hopkins, 1991

Michael K. Parides, *Assistant Professor of Clinical Biostatistics*
B.A., Chicago, 1982; M.S., Columbia, 1985; Ph.D., 1995

Alan D. Weinberg, *Assistant Clinical Professor of Biostatistics*
B.S., Rutgers, 1975; M.S., Columbia, 1991

RESEARCH SCIENTIST

John L. P. Thompson
(also Neurology) B.A., Cambridge, 1971; M.A., 1974; M.A., California (Los Angeles), 1974; Ph.D., 1979

ASSOCIATE RESEARCH SCIENTISTS

Elisa Dicker
Ph.D., Argentina, 1971

Sudhir Marathe
B.S., India, 1984; M.S., New Delhi, 1986; Ph.D., Cambridge (UK), 1990

ADJUNCT ASSISTANT PROFESSOR

Donald C. Ross
B.A., Rochester, 1955; M.A., North Carolina, 1957; Ph.D., 1960

SPECIAL LECTURER

Paul Meier, *Ph.D. (Emeritus)*
(also Statistics)

LECTURERS

Lauri Benton, *M.D., M.P.H.*

Mark Davies, *M.P.H.*

Overview

Biostatistics is about evidence or evidence-based research. A quote from Dr. Paul Meier, division head from 1992 to 1998, summarizes: "It would be a disservice to introduce new treatment based on anything less than rigorous quantitative analysis." Biostatistics provides the basic tools for the collection, analysis, and presentation of data in all areas of public health. Biostatistical techniques are used in measuring effectiveness of preventive, diagnostic, and treatment activities, and in public health analysis. From the formation of the Delamar Institute of Public Health in 1922, biostatistics has been offered as a fundamental course for all public health students. Established as a division of the school in 1940, the Department of Biostatistics was one of the first in the nation. It provides analytic and data coordination expertise and collaboration to Health Sciences schools, departments, centers, and institutes. Under the leadership of Dr. Bruce Levin, the department has attained a vibrant, dynamic teaching, research, and consulting atmosphere. Recently located in expanded space with accompanying computing and administrative support, the Department of Biostatistics participates in myriad fields of research in medicine and public health (e.g., neurology, cancer, AIDS, psychiatry) and offers free consultation on study design and analysis to the Health Sciences professional research community. Clients have the opportunity to discuss their studies with department faculty and students from early in the design stage. Its Statistical Analysis Center provides data management and statistical analysis for randomized clinical trials and other large projects. In addition, the department holds new methodology research grants; notably, the department recently established the Division of Statistical Genetics and a brain trauma imaging research group. All this is integrated with an increase in appointments of well-trained, pioneering faculty and a growing, talented, and diverse student

body. A complete description of the work of the Department of Biostatistics, including academic programs, is available at the department Web site (<http://www.mailman.hs.columbia.edu/biostat/index.html>).

Learning Objectives

The discipline of biostatistics is concerned with the development and use of statistical methodology for various kinds of quantitative studies in biology, medicine, and health. Biostatistical skills are necessary in research design, collection and organization of data, analysis, and final presentation of results. The methodology is derived largely from the fields of applied mathematics and probability.

Individuals entering the field of biostatistics come from diverse backgrounds. Some are mathematicians, some have majored in the natural or social sciences, and others are professionals in clinical fields. All should have a background in the sciences, with strong preparation in mathematics. Knowledge of calculus is required for all programs. Most important is an affinity for quantitative methods, and intuition and common sense in working with quantitative material.

Those trained in biostatistics are most often employed in city, state, and federal health agencies; hospitals; the health insurance industry; the pharmaceutical industry; and academic research settings. Excellent employment opportunities exist for students in all degree programs.

Upon satisfactory completion of a master's degree in biostatistics, all graduates will be able to demonstrate knowledge and skills with varying emphasis in particular areas of data analysis and computing, public health and collaborative research, consulting, teaching biostatistics, and biostatistical research.

Academic Programs

MASTER OF PUBLIC HEALTH (M.P.H.)

The M.P.H. degree in biostatistics is designed to enhance the quantitative skills of public health practitioners who use statistics frequently in their work. This degree is intended primarily for public health specialists who wish to use and adapt statistical procedures for health and medical care programs, or who wish to serve in a technical capacity as resource persons and collaborators in field and programmatic studies. The M.P.H. in biostatistics provides adequate preparation for the Dr.P.H. program. Students interested in careers as biostatisticians are advised to consider the M.S., Theory and Methods track, described below. Upon satisfactory completion of the M.P.H. degree, all graduates will be able to demonstrate a broad knowledge and skills base in the core areas of public health, with particular emphasis in biostatistical methods.

M.P.H. Curriculum*

Required Public Health Core Courses	Points
P6104 Introduction to Biostatistics	4
P6300 Environmental Health Sciences	3
P6400 Principles of Epidemiology I	3
P6530 Issues and Approaches in Health Policy and Management.	3
P6700 Introduction to Sociomedical Sciences	3
	16

Required Biostatistics Courses

P8104 Probability	3
P8111 Linear Regression Models	3
P8120 Analysis of Categorical Data	3
P8140 The Randomized Clinical Trial	3
P8185 Capstone Consulting Seminar	1
	13

Suggested Biostatistics Electives

Rule: Complete three courses

P6110 Statistical and Computer Methods in Health Data	3
P8108 Survival Analysis	3
P8116 Design of Medical Experiments	3
P8117 Nonparametric Statistics	3
P8129 Theory of Multivariate Analysis	3
P8141 Genetic Analysis Laboratory	3
P8149 Statistical Aspects of Human Population Genetics	3
G6210 Applied Statistics (Consulting) (Morningside campus)	2
	9

Other Electives

These three additional electives should serve to provide additional biostatistical skills and/or a focus on a particular area of interest within public health. The following courses are examples:

P6781 The Use of Large-Scale National Health Care Data Sets	3
P8307 Genetics in Epidemiology	3
P8401 Epidemiological Evaluation of Drug Safety	3
P8403 Nutritional Epidemiology	2
P8405 Genetics in Epidemiology	3
P8414 Cancer Epidemiology	3
P8417 Selected Problems of Measurement in Epidemiology	3
P8419 Neurobiology and Genetics of Psychiatric Disorders	3
P8422 Perinatal Epidemiology	3
P8438 Epidemiology II: Design and Conduct of Observational Epidemiology	3
P8440 Epidemiology of Cardiovascular Diseases	3
P8777 Survey Research Methods	3
<i>(three electives from Biostatistics or other departments)</i>	9

TOTAL POINTS: 45

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

MASTER OF SCIENCE (M.S.)

Students in the M.S. in biostatistics degree program select one of three tracks of specialization: Theory and Methods, Clinical Research Methods, or Patient Oriented Research. The three specialty tracks include the core M.S. in biostatistics degree learning objectives plus additional objectives specific to each area of emphasis.

Theory and Methods Track

The Theory and Methods track is designed for students interested in careers as biostatisticians. It provides sufficient preparation for students who want to pursue a Ph.D. in biostatistics. Candidates for admission may come from medical or nonmedical fields. Applicants must present evidence of strong preparation in quantitative skills.

While formal courses in statistics are not required, students are encouraged to have or obtain a working knowledge of calculus and linear algebra. Students with strong scores on the quantitative section of the Graduate Record Examination (GRE) are given first preference.

Some students, such as those with undergraduate majors in statistics or mathematics, may have several courses waived; these students must complete a minimum of 32–38 points to earn the M.S. degree. Students with little background in statistics may have to take as many as 42 points.

M.S., Theory and Methods Track*

Required Courses	Points
P6104 Introduction to Biostatistical Methods	4
P6400 Principles of Epidemiology I	3
P8104 Probability	3
P8108 Survival Analysis	3
P8109 Statistical Inference	3
P8111 Linear Regression Models	3
P8116 Design of Medical Experiments	3
P8120 Analysis of Categorical Data	3
P8121 Generalized Linear Models	3
P8140 The Randomized Clinical Trial	3
P8185 Capstone Consulting Seminar	1
	32**

Elective Courses

Rule: Complete two or more courses from this list or from alternatives approved by your academic advisor.

P8117 Nonparametric Statistics	3
P8129 Theory of Multivariate Analysis	3
P8139 Theoretical Genetic Modeling	3
P8141 Genetic Analysis Laboratory	3
P8149 Statistical Aspects of Human Population Genetics	3
P8150 Topics in Applied Statistics	3
P8180 Research Data Coordination: Principles and Practices	3
P9154 Discrete Statistical Analysis	3
W4606 Elementary Stochastic Processes (Morningside campus)	3
G4005 Introduction to Mathematical Genetics	3
	6

Clinical Research Methods Track

The Clinical Research Methods track provides formal, rigorous training in the design and analysis of clinical research studies. It is designed for physicians, nurses, dentists, pharmacists, and other health care professionals who hold a doctorate and exhibit extensive clinical research experience and who require superior skills in applied statistics in order to better pursue research in their own fields of expertise.

M.S., Clinical Research Methods Track*

Required Courses	Points
P6104 Introduction to Biostatistical Methods	4
P6400 Principles of Epidemiology I	3
P8100 Applied Regression Analysis	3
P8110 Applied Regression Analysis II	3
P8120 Analysis of Categorical Data	3
P8140 The Randomized Clinical Trial	3
P9160 Master's Essay in Biostatistics I— Clinical Research Methods	3
P9161 Master's Essay in Biostatistics II— Clinical Research Methods	2
	24

Elective Courses

Rule: Complete up to 6 points of coursework from the list below.

Other advanced courses from the Department of Biostatistics or another department in the Mailman School of Public Health may be substituted, with approval from your academic advisor.

P6110 Statistical and Computer Methods in Health Data	3
P6300 Environmental Health Sciences	3
P6530 Issues and Approaches in Health Policy and Management	3
P6781 The Use of Large-Scale National Health Care Data Sets	3
P8104 Probability	3
P8109 Statistical Inference	3
P8117 Nonparametric Statistics	3
P8139 Theoretical Genetic Modeling	3
P8141 Genetic Analysis Laboratory	3
P8149 Statistical Aspects of Human Population Genetics	3
P8307 Molecular Epidemiology	3
P8308 Molecular Toxicology	3
P8401 The Epidemiological Evaluation of Drug Safety	3
P8403 Nutritional Epidemiology	2
P8405 Genetics in Epidemiology	3
P8414 Cancer Epidemiology	3
P8417 Selected Problems of Measurement in Epidemiology	3
P8419 Neurobiology and Genetics of Psychiatric Disorders	3
P8422 Perinatal Epidemiology	3
P8438 Epidemiology II: Design and Conduct of Observational Epidemiology	3
P8440 Epidemiology of Cardiovascular Diseases	3
	6

**This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

**Students are required to complete from 32 to 38 credits of coursework, depending on their background.

Patient Oriented Research Track

The Patient Oriented Research track is a broadly based, didactic training program that prepares young investigators for independent careers as clinical scientists. Similar to the Clinical Research Methods track, all candidates on the Patient Oriented Research track must have completed a doctorate in a clinical discipline prior to enrollment. This program is further distinguished from the Clinical Research Methods track in that it is supported by a K30 Clinical Research Curriculum Development Award from the NIH. The Patient Oriented Research track offers six full-tuition scholarships per year to exceptional applicants.

M.S., Patient Oriented Research Track*

Required Courses	Points
P6104 Introduction to Biostatistical Methods	4
P8120 Analysis of Categorical Data	3
P8140 The Randomized Clinical Trial	3
P8438 Epidemiology II: Design and Conduct of Observational Epidemiology	3
M8502 Colloquium on Patient Oriented Investigation	2
M8208 Basic Laboratory Methods	1
G4010 Responsible Conduct of Research and Related Policy Issues	1
M9780 Funding for Research Activities: Basic Issues in Obtaining Support	1
P9165 Master's Essay in Biostatistics—Patient Oriented Research	3
<i>Rule: Complete one</i>	
P8110 Applied Regression Analysis II	3
P8307 Molecular Epidemiology	3
P8405 Genetics in Epidemiology	3
G9600 Molecular Pharmacology: From Membrane to Nucleus	4
24–25	

Elective Courses

Rule: Complete up to 6 points of coursework from the list below. Courses are grouped according to particular fields of emphasis. You may select two or more courses from a certain grouping or from different groups, depending upon your interests. All selections must be approved by your supervisor.

Electives in Data Analysis:

P6110 Statistical and Computer Methods in Health Data	3
P8100 Applied Regression Analysis	3
P8139 Theoretical Genetic Modeling	3

Electives in Epidemiology:

P8401 The Epidemiological Evaluation of Drug Safety	3
P8403 Nutritional Epidemiology	2
P8414 Cancer Epidemiology	3
P8422 Perinatal Epidemiology	3
P8440 Epidemiology of Cardiovascular Diseases	3
P8419 Neurobiology and Genetics of Psychiatric Disorders	3

Electives in Health Policy:

P6503 Introduction to Health Economics	3
P6530 Issues and Approaches in Health Policy and Management	3

Electives in Environmental Sciences:

P6300 Environmental Health Sciences	3
P8308 Molecular Toxicology	3
P8319 Biological Markers of Chemical Exposure	3

Electives Offered by the Graduate School of Arts and Sciences and by the College of Physicians & Surgeons:

G4012 Introduction to Genomics	3
G4152 Eukaryotic Molecular Biology	4
G6001 Principles of Physiology	4
6	

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

DOCTOR OF PUBLIC HEALTH (DR.P.H.)

The Doctor of Public Health degree is designed for the student who wishes to apply modern statistical methods to the solution of important public health problems. The well-qualified applicants admitted to the program already hold the Master of Public Health. The degree program is administered by the Standing Doctoral Committee of the Mailman School of Public Health, which carries out faculty policy on admission to the doctoral program and upholds the criteria for granting the degree.

DOCTOR OF PHILOSOPHY (PH.D.)

The Ph.D. is awarded by the Graduate School of Arts and Sciences rather than the Mailman School of Public Health. The program is overseen by a standing subcommittee of the Graduate Faculty comprised of faculty from both the Department of Biostatistics and Columbia's Morningside campus. The Ph.D. requirements are similar to those for the Dr.P.H., except the examinations and the dissertation involve relatively more emphasis on mathematics and less on public health applications. Students are typically admitted to the Ph.D. program after they have earned an M.S. in biostatistics. Doctoral students are required to take P9109 and P9110 *Theory of statistical inference I and II*. (Statistics G6105 *Probability theory* and P9107 and P9108 *Statistical modeling for data analysis I and II* are strongly recommended but not required.) This coursework prepares students for a written qualifying exam required to proceed toward the Ph.D. Ph.D. students in biostatistics take some advanced courses from the Department of Statistics in addition to courses offered in the Department of Biostatistics. After passing the written qualifying examination, Ph.D. students begin intensive study of a class of statistical procedures that have relevance to a specific problem in biomedical research. Using this study, they write a 20-page paper reviewing the literature, which defines the context for a two-hour oral examination. The oral examination also probes the student's understanding of theoretical statistics, as well as the problem under review.

Students passing these qualifying examinations receive the Master of Philosophy degree and then go on to pursue their dissertation research.

The Ph.D. dissertation must represent an original contribution to statistical theory or method that has relevance to a real biomedical application. A Ph.D. candidate should be able to complete the degree within five years of receiving the master's degree. Further information on admissions criteria and program requirements may be obtained from the Department of Biostatistics. Application is made through the Graduate School of Arts and Sciences; applicants may call 212-854-4737 and may also download a Ph.D. application from its Web site ([http://www.columbia.edu/cu/gsas/download.html\[mdw1\]](http://www.columbia.edu/cu/gsas/download.html[mdw1])).

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6100 Introduction to vital statistics, 1 point.

Mass data of the health fields; the content of vital statistics; methods of collecting, tabulating, and graphing data; elementary methods of analyzing some of the simpler types of data in terms of averages, percentages, and rates. Direct and indirect standardization.

Students must consult with their academic advisors to determine which Biostatistics core course is required by their department/program. *P6103 Introduction to biostatistics* is the appropriate introductory course for nonbiostatistics concentrations and is a satisfactory prerequisite for our two other main service courses (*P8100 Applied regression analysis I* and *P8120 Analysis of categorical data*).

P6104 Introduction to biostatistical methods is the appropriate introductory course for biostatistics students and any other quantitatively oriented students who will pursue advanced study in biostatistics beyond the two main service courses listed above (*P8100* and *P8120*).

P6103 Introduction to biostatistics, 3 points.

Covers the language of biostatistics and the standard techniques of data collection and analysis. Topics include those discussed in *P6100* plus summarization of experimental, observational, and population level data by means of percentages, averages, and measures of variation; methods for evaluating the role of chance variation; introduction to the concepts of correlation and regression.

P6104 Introduction to biostatistical methods, 4 points.

An enriched core course for students concentrating in biostatistics and others who expect to take additional courses in biostatistics beyond the two main service courses. It covers in greater depth all of the topics in *P6103* and is the best preparation for students anticipating a quantitative orientation in their degree programs. Topics covered include standard distributions, measures of central tendency and dispersion, hypothesis testing, point estimation, confidence intervals, and an introduction to correlation and regression.

P6105 Introductory probability with statistical applications, 3 points.

Corequisite: *P6104*. Suggested preparation: working knowledge of calculus. Intended for M.P.H. students outside the concentration of biostatistics and for other students likely to take advanced courses in biostatistics. Develops probability models for discrete and continuous variables, and illustrates their applications to inferences about contingency tables, to nonparametric problems, and to estimation using maximum likelihood.

P6110 Statistical and computer methods in health data, 3 points.

Uses of the computer in cleaning, summarizing, and cross-classifying data. Expansion of the material covered in *P6103*—regression, correlation and contingency table analysis, and the analysis of variance—with data analysis carried out using standard statistical packages.

P8100 Applied regression analysis, 3 points.

Prerequisite: *P6103* or *P6104*. The study of linear statistical models. Regression and correlation with one independent variable. Partial and multiple correlation. Multiple and polynomial regression. Single factor analysis of variance. Simple logistic regression.

P8104 Probability, 3 points.

Prerequisites: *P6104* and working knowledge of calculus. Fundamentals, random variables, and distribution functions in one or more dimensions; moments, conditional probabilities, and densities; Laplace transforms and characteristic functions. Infinite sequences of random variables, weak and strong large numbers; central limit theorem.

P8108 Survival analysis, 3 points.

Prerequisite: *P8104* and *P8109* or the equivalent. Clinical trials concerning chronic disease, comparison of survivorship functions, parametric models for patterns of mortality and other kinds of failures, and competing risks.

P8109 Statistical inference, 3 points.

Prerequisites: *P8104* and working knowledge of calculus, population parameters, and statistics. Basic distribution theory. Point and interval estimation. Method of maximum likelihood. Method of least squares regression. Introduction to the theory of hypothesis testing. Likelihood ratio tests. Nonparametric procedures. Statistical design theory.

P8110 Applied regression analysis II, 3 points.

Prerequisites: *P6104* and *P8100*. An introduction to the application of statistical methods in survival analysis, generalized linear models, and design of experiments. Topics to be covered include estimation and comparison of survival curves, regression models for survival data, log-linear models, logit models, analysis of repeated measurements, and the analysis of data from blocked and split-plot experiments. Examples are drawn from the health sciences.

P8111 Linear regression models, 3 points.

Prerequisites: *P8104* and some computer background and corequisite: *P8109*. The theoretical background underlying regression techniques. Simple regression. Bivariate normal distribution and correlation. Multiple and polynomial regression.

P8113 Wavelets: concepts and applications in biostatistics, 3 points.

Permission of instructor required. Provides students with both a solid background in the foundations of wavelets and a detailed overview of a variety of statistical applications. Upon completion, students can evaluate whether wavelets will be useful in new problems, and if so, work out basic methods of applying wavelets to such situations.

P8115 Sample survey theory, 3 points.

Prerequisite: *P8111* or the equivalent. Theory and practice of sampling populations. Simple random, stratified random, cluster, multistage, and systematic random sampling. Additional topics include optimal allocation, ratio and regression estimation, balancing precision against cost, and sources of bias including nonresponse.

P8116 Design of medical experiments, 3 points.

Prerequisite: *P8111* or the equivalent. Principles in the design and analysis of controlled experiments: Latin squares, incomplete block designs, crossover designs, fractional factorial designs, confounding.

P8117 Nonparametric statistics, 3 points.

Prerequisite: *P6104* or the equivalent. Presentation of statistical techniques requiring minimal distribution assumptions. Topics include rank tests, permutation tests, contingency tables, rank correlation methods, and analysis of variance. As time permits, selected topics in bootstrapping, nonparametric survival analysis, and nonparametric regression are included.

P8120 Analysis of categorical data, 3 points.

Prerequisites: *P6103* or *P6104* and *P6400* or their equivalents. A thorough study of the fourfold table, with applications to epidemiological and clinical studies. Significance versus magnitude of association; estimation of relative risk; matching cases and controls; effects, measurement, and control of misclassification errors; combining evidence from many studies.

P8121 Generalized linear models, 3 points.

Prerequisites: *P8111* and *P8109 Statistical inference*. An examination of a generalization of the classical regression model. Topics include log-linear models for count data, probit and logit models, analysis of data with discrete ordered responses, and analysis of continuous data where the variability increases with the mean. Survival analysis and model checking are discussed as time allows.

P8129 Theory of multivariate analysis, 4 points.

Prerequisite: *P8111* or the equivalent. Thorough review of matrix algebra, inverses, orthonormalization, affine transformations, eigenvectors and eigenvalues. The multivariate normal distribution. Multivariate sampling distributions. The multivariate general linear model. Hotelling's T^2 .

P8133 Sequential experimentation, 3 points.

Prerequisites: *P8104* and *P8109* or their equivalents. An introduction to sequential analysis as it applies to statistical problems in clinical trials, hypothesis testing, selection, and estimation. Emphasis is placed on a study of procedures, operating characteristics, and problems of implementation, rather than mathematical theory. Students obtain an overview of currently available sequential designs and the advantages and disadvantages they offer in comparison with classical designs.

P8139 Theoretical genetic modeling, 3 points.

Prerequisites: *P8104* and *P8175*. The theoretical foundations underlying the models and techniques used in mathematical genetics and genetic epidemiology. Topics include use and interpretation of likelihood methods, formulation of mathematical models, segregation analysis, ascertainment bias, linkage analysis, genetic heterogeneity, and complex genetic models. Lectures, discussions, homework problems, and a final exam.

P8140 The randomized clinical trial, 2 points.

Prerequisite: *P6104* or the equivalent. Fundamental methods and concepts of the randomized clinical trial: protocol development, randomization, blinding, patient recruitment, informed consent, compliance, sample

size determination, crossovers, collaborative trials. Each student prepares and submits the protocol for a real or hypothetical clinical trial.

P8141 Genetic analysis laboratory, 3 points.

Prerequisites: *P6104*, *P8175*, and the instructor's permission. Provides students with a hands-on feel for the problems and vagaries of genetic linkage data. Students use computer simulation to human linkage data under a variety of conditions—varying such parameters as the mode of inheritance, penetrance, gene frequency, and heterogeneity—and then analyze those data using both correct and incorrect assumptions about the true origin of the data. In so doing, students gain an understanding of the variation in results that occurs due to random factors and also acquire insights into the reliability of results. Topics include basics of linkage analysis, mode of inheritance assumptions, heterogeneity, complex models, ascertainment, multipoint analysis.

P8149 Statistical aspects of human population genetics, 3 points.

Prerequisites: *P6104*, *P8175*, and the instructor's permission. Fundamental principles of population genetics, with emphasis on human populations. Genetic drift, natural selection, nonrandom mating, quantitative genetics, linkage analysis, and application of current technology (e.g., SNPs). Students master basic principles of population genetics and are able to model these principles mathematically/statistically.

P8150 Topics in applied statistics, 3 points.

Prerequisites: *P8111* and *P8109 Statistical inference*. Presentation of some recently developed ideas in applied statistics including the EM algorithm; the jackknife, bootstrap, and other resampling methods; model selection; and regression diagnostics.

P8157 Analysis of repeated measurements, 3 points.

Prerequisite: *P8111*. Topics include features of repeated measurements studies: balance in time, time-varying covariates, and correlation structure. Examination of the models for continuous repeated measures based on normal theory: random effects models, mixed models, multivariate analysis of variance, growth curve models, and autoregressive models. Nonparametric approaches and models for repeated binary data. Applications of generalized linear models to repeated data. Empirical Bayes approaches are discussed as time allows.

P8175 Principles of genetics for biostatisticians, 3 points.

Prerequisites: *P6104*. A one-semester course on the fundamentals of genetics necessary to understand statistical methods used in genetics. Methods are based on biological principles shared by many aspects of statistical research in genetics. Students must be familiar with these concepts before taking more advanced courses. Tailored to biostatistics students: focuses on biological phenomena necessary for understanding statistical genetics and demonstrates how principles of genetics are translated from biological phenomena to applied mathematical methodologies.

P8180 Research data coordination: principles and practices, 3 points.

Prerequisites: *P6103* or *P6104* and the instructor's permission. Provides a conceptual framework for the management of data in modern health science research projects in which original data are collected from individual subjects. The course is structured to parallel the temporal sequence in a research project, beginning with data-related considerations in the preparation of a grant proposal, database design, reporting and data delivery systems, and ending with the preparation of reports and publications and the dissemination of research findings. Emphasis on institutional and regulatory issues, including the emergence of data coordinating centers and the implications of the Health Insurance Portability and Accountability Act (HIPAA).

P8185 Capstone consulting seminar, 1 point.

Prerequisite: 15 points of completed coursework in biostatistics. The capstone course for the M.S. Theory and Methods track and M.P.H. students in biostatistics provides experience in the art of consulting and in the proper application of statistical techniques to public health and medical research problems. Enables students to translate research objectives into statistical hypotheses, devise appropriate study designs, perform sample size calculations for studies employing simple random sampling, formulate and prepare written plans for statistical analysis for a research proposal, compose summaries of quantitative analyses, and communicate results clearly to public health colleagues. Based on seminars requiring active student participation. Requirements include four written assignments, an oral presentation, and attendance at a minimum of one session of the Biostatistics Consulting Service. Final grade based on evaluation of the written assignments and student participation.

P9105 Topics in the analysis of longitudinal studies, 3 points.

Prerequisite: *P8108* or the equivalent. Seminar for advanced students planning to pursue doctoral work in this area. Reading of recent articles of theoretical and practical importance for the planning and analysis of long-term longitudinal studies. Lectures, discussions, presentations by students.

P9107 Statistical modeling for data analysis I, 4 points.

Prerequisites: *P8109* or equivalent; familiarity with matrix algebra.

P9108 Statistical modeling for data analysis II, 4 points.

Prerequisite: *P9107* or instructor's permission. This two-semester sequence is a core course in modern methods of applied statistics for doctoral candidates in statistics and biostatistics. It complements and parallels the existing core requirements in probability and mathematical statistics. An intensive survey of statistical data analysis within an interactive computing environment. Assignments requiring computer analysis of scientific data are due approximately every week. Topics from the subjects of regression, ANOVA, ANCOVA, design of experiments, random effects, variance components, contingency tables, logistic regression, survival curves, time series, and multivariate analysis are included. These topics are covered in less depth and with less mathematical formalism than in other courses in statistics and biostatistics that devote an entire semester to some of the above subjects. However, the lectures assume a doctoral level of sophistication during presentation of the theoretical bases of each method, and of the connections and relationships among methods. The mechanics of computer usage are not discussed in lectures but are covered in a weekly recitation section.

P9109 Theory of statistical inference I, 4.5 points.

Prerequisite: *Statistics G6105 Probability theory and real analysis I* or the equivalent. Suggested preparation: This is a doctoral level course. A general introduction to mathematical statistics and statistical decision theory. Elementary decision theory, Bayes inference, Neyman-Pearson theory, hypothesis testing, uniformity, most powerful unbiased tests, confidence sets. Estimation: methods, theory, and asymptotic properties. Likelihood ratio tests, multivariate distribution. Elements of general linear hypothesis, invariance, nonparametric methods, sequential analysis.

P9110 Theory of statistical inference II, 4.5 points.

Prerequisite: *P9109*; this is a continuation of that course. A general introduction to mathematical statistics and statistical decision theory. Elementary decision theory, Bayes inference, Neyman-Pearson theory, hypothesis testing, uniformity, most powerful unbiased tests, confidence

sets. Estimation: methods, theory, and asymptotic properties. Likelihood ratio test, multivariate distribution. Elements of general linear hypothesis, invariance, nonparametric methods, sequential analysis.

P9154 Discrete statistical analysis, 3 points.

Prerequisites: *P8104*, *P8120*, and *P8109*. Discrete univariate and multivariate distributions; sampling models for discrete data; maximum likelihood and best asymptotically normal estimation; asymptotic behavior of goodness of fit statistics; homogeneity of association and symmetry in multiway contingency tables; log-linear models; polytomous logistic regression.

P9160 Master's essay in biostatistics I: Clinical Research Methods, 3 points.

P9161 Master's essay in biostatistics II: Clinical Research Methods, 2 points.

This two-term sequence comprises a master's essay in the form of a research project. Each student is supervised by faculty members from Biostatistics and from the student's own clinical field. The research project should be undertaken during the final two semesters of study. Data for this project are provided to those students who come to the program without a data set in hand. In addition, a series of special seminars are offered in which active researchers from Biostatistics and various clinical disciplines speak on relevant topics.

P9165 Master's essay in biostatistics: Patient Oriented Research, 3 points.

PDR track only.

A master's essay in the form of an NIH-style grant application is required for the M.S. degree with a concentration in biostatistics, Patient Oriented Research track. Each student is supervised by a project sponsor from Biostatistics and a clinical mentor from the student's own clinical field. The essay is undertaken during the fall semester of the second year of study. At the end of the term, the student submits a research grant proposal following NIH guidelines for applications. Each proposal is then reviewed by the project sponsor, clinical mentor, and the P.O.R. advisory board.

Also:

Offered through the Department of Cellular, Molecular, and Biophysical Studies for PDR track only.

G4010 Responsible conduct of research and related policy issues, 1 point.

Explores a variety of ethical and policy issues that arise during the conduct of basic and clinical scientific research. Topics include: (1) authorship practices in scientific publications; (2) scientists as citizens; (3) social and ethical implications of genetic technologies; (4) conflicts of interest arising from scientists acting as policy consultants and experts; (5) the use of laboratory animals in scientific research; (6) human subjects and scientific research; (7) scientific misconduct; (8) science wars; (9) intellectual property and technology transfer; and (10) the impact of federal scientific policies on academic scientists. Course sessions include lectures, discussion periods, and analyses of case studies.

Offered through the Institute of Human Nutrition and Research Administration, College of Physicians & Surgeons for PDR track only.

M8208 Basic laboratory methods, 1 point

This 1-point, one-semester course aims to introduce, with hands-on experience in the General Clinical Research Center (GCRC) Core Laboratory, concepts of precision and accuracy, and intra- and interassay variability. Students gain theoretical and practical experience with

various basic laboratory methods, including radioimmunoassay and ELISA procedures, high-performance liquid chromatography, tissue culture, DNA isolation and polymerase-chain reaction (PCR), gamma and beta-scintillation counting, and mass spectroscopy. Students leave with an understanding of the strengths and weaknesses of the laboratory assays they may later use to generate important endpoint data in patient oriented research studies.

M8502 Colloquium on patient oriented investigation, 2 points.

Provides students with insights into and understanding of the process of patient oriented research and gives students an opportunity to meet active investigators from both academia and industry. An excellent base for the development of the Master's Essay (*P9165*) required from each student as the culminating experience of the degree program. This weekly seminar series carries 0.5 point per semester and runs during the fall and spring semesters over the course of the two-year program. Active researchers from various clinical disciplines and public health are invited to speak on research techniques, design, and laboratory methodology as applied to current studies. They present their experiences in conducting patient orientated research on the Health Sciences campus and elsewhere. Also features speakers from both the pharmaceutical and biotech industries, who discuss drug development, and preclinical and clinical trials. Other lectures deal with FDA regulations, patent law, and the Institutional Review Board. Reading assignments parallel each semester.

M9780 Funding for research activities: basic issues in obtaining support, 1 point.

A course for graduate students, postdoctoral fellows, new investigators, faculty, and administrators. Presented in a series of seminars entitled: "Types of Support and Review Processes for Research and Training Activities: Government Agencies"; "Types of Support and Review Processes for Research and Training Activities: Voluntary Health Organizations, Foundations, Industry, Clinical Trials, and Development"; "Planning and Organizing a Research Proposal" (a) "University Internal Review Procedures"; (b) "Identifying Sources of Funding"; "Panel Discussion: Practice of Seeking Grant Support: Tips from Experienced Researchers at Columbia"; "Experiences of a Peer Reviewer: Government and Nongovernment Grants"; "Student Presentations."

Offered through the Department of Pharmacology, Graduate School of Arts and Sciences for POR track only:

G9600 Molecular pharmacology: from membrane to nucleus, 4 points.

Prerequisite: familiarity with basic biochemistry and molecular biology. Provides students with an introduction to molecular approaches to target identification and drug development and delivery for cellular and subcellular processes that contribute to human disease. Includes the principles of drug-receptor interactions; ion channels as molecular targets of neuro-hormones and drugs; structure and function of G-protein coupled receptors; cytoplasmic signaling molecules including receptor and non-receptor tyrosine kinases and serine-threonine kinases; neuro-psychopharmacology; the pharmacology of inflammation; and novel approaches to gene-cancer, neurodegenerative disease, and psychiatric disorders. Required for students in the Pharmacology graduate program, but open to all interested students.

Offered through the Department of Statistics:

W3701/W4201 Advanced data analysis, 3 points.

How to get the most out of data for students in statistics, biostatistics, the sciences, social sciences, humanities, health sciences, law, and engineering. Emphasis on hands-on experience, involving case studies with real data and using the statistical package S, which is taught from scratch. Students are encouraged to use other statistical packages of their choice, e.g., SAS, SPSS, or BMOP. Covers exploratory data analysis, model formulation, goodness-of-fit testing, and other standard and non-standard statistical procedures, including linear regression, analysis of variance, nonlinear regression, generalized linear models, survival analysis, time series analysis, and modern regression methods. Prospective students and auditors of the class are invited to propose a data set of their choice for use as case study material. In addition to homework and a midterm, grade is based on a final project. No final exam.

Statistics W4606 Elementary stochastic processes, 3 points.

Review of elements of probability theory. Poisson processes. Exponential distribution. Renewal theory. Wald's equation. Introduction to discrete-time Markov chains and applications to queuing theory, inventory models, branching processes.

ENVIRONMENTAL HEALTH SCIENCES

Degrees offered:

M.P.H., Environment and Molecular Epidemiology . . . 40	M.P.H., Medical/Health Physics 41
M.P.H., Environment and Molecular Toxicology . . . 40	Dr.P.H. 41
	Ph.D. 41

Department of Environmental Health Sciences

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Department Coordinator: Ann Hutzelmann

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M.P.H., 1980; Dr.P.H., 1987

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SPECIAL LECTURER

Leonard C. Harber, *M.D. (Emeritus)*

(also Dermatology)

SENIOR LECTURERS

James Winchester, *M.D.*

Marco Zaider, *Ph.D.*

LECTURERS

Denton Brosius, *Ph.D.*

Lawrence D. Budnick, *M.D., M.P.H.*

Arvind V. Carpenter, *Dr.P.H.*

David E. Cohen, *M.D., M.P.H.*

Vincent M. Coluccio, *Dr.P.H.*

Fanny K. Ennever, *Ph.D.*

Swati P. Prakash, *M.S.*

Bradford Sewell, *J.D., M.P.H.*

Ronald F. Teichman, *M.D.*

H. Michael D. Utidjian, *M.B.B.S.*

Overview

The Department of Environmental Health Sciences has a world-class faculty working at the cutting edge of environmental health issues. Learning and research opportunities combine laboratory science with the study of health in environmentally exposed populations, and a low student-to-faculty ratio allows for individualized learning experiences. Recent research initiatives include studies on the environmental aspects of asthma (such as assessment of the role of ozone levels on respiratory health and the role of indoor allergens), a model program on community outreach and education in the Center for Environmental Health in Northern Manhattan (an affiliated center that also conducts studies on neurodegenerative disease as a result of environmental exposures), and environmental carcinogens. Another affiliate, the Columbia Center for Children's Environmental Health, is conducting a cohort study among more than 500 pregnant women on environmental pollutants as risk factors for neurodevelopment, asthma, and cancer; and their Healthy Home Healthy Child community education campaign in northern Manhattan and the South Bronx focuses on air pollution, cigarette smoke, nutrition, and pesticides. Research continues on the development of biological

markers of exposure and on effects of carcinogens and other toxicants, such as lead; on the application of biomarkers to molecular epidemiology; on the development of new analytic procedures for molecular markers of environmental contaminants; on applied toxicology; on ethics in occupational medicine; and on risk assessment. There is a collaboration with WE ACT (West Harlem Environmental Action, Inc.) on issues of environmental justice and street-level diesel exhaust exposure and another collaboration with scientists at Lamont-Doherty, the College of Physicians & Surgeons, and the Department of Epidemiology on studies concerning the health effects and geochemistry of arsenic in the United States and worldwide. The focus here is on arsenic poisoning of the drinking water in Bangladesh, and the collaboration received the largest U.S. federal grant in response to the Bangladesh arsenic crisis.

Check the department Web site (<http://www.mailman.hs.columbia.edu/ehs/>) for more information.

Learning Objectives

Environmental health sciences is a rapidly expanding field that requires a broad range of basic and applied scientific skills. The program at the Mailman School of Public Health is primarily oriented toward understanding and predicting the health effects of environmental and occupational exposure to chemicals and radiation. Research activities of the faculty aim to generate scientific data that ultimately serve as the underpinnings of environmental policy decisions. Because the field is so broad, students are encouraged to focus on particular areas within the Environment and Molecular Toxicology, Environment and Molecular Epidemiology, or Medical/Health Physics track.

Students find employment in varied settings, including academia, the chemical and pharmaceutical industries, federal or local environmental protection agencies, health departments, hospitals (particularly Medical/Health Physics students), environmental consulting firms, and public interest groups.

The requirements for admission to the Environmental Health Sciences program are special to this department and must be read in conjunction with the general requirements of the School. The program in Environmental Health Sciences typically attracts students with a wide variety of backgrounds and interests, but several academic prerequisites are required for admission. These include one year of undergraduate biology, one year each of general and organic chemistry, and one year of undergraduate mathematics (which must be calculus for the Medical/Health Physics track). If a student is missing one of the prerequisites, he or she may be admitted on the condition that the deficiency will be successfully completed during the first semester. Fall admissions are encouraged.

Academic Programs

MASTER OF PUBLIC HEALTH (M.P.H.)

Course requirements for the M.P.H. vary substantially depending on individual student's needs. For example, students interested in environmental or molecular epidemiology are expected to take some toxicology coursework and more than the minimal M.P.H. requirements in epidemiology and biostatistics; those pursuing toxicology (a joint program with the Department of Pharmacology in the Medical School) are expected to develop a strong background in physiology and molecular biology. Students particularly interested in policy issues may elect to take additional courses offered via the Environmental Policy program in the School of International and Public Affairs at the main campus. Some flexibility and crossover is usually allowed, taking into account each student's background and career goals. A master's essay is optional but is strongly recommended for students who are also considering the pursuit of the Dr.P.H. degree. For students not doing a master's essay, the course *P9300 Topics in environmental sciences* is necessary to satisfy the "capstone" requirement. At the M.P.H. level, the practicum experience varies from laboratory research to governmental agency involvement to relevant summer or part-time corporate or interest group employment. Alumni actively participate in these efforts. Students who have significant professional background may be permitted to meet this requirement through prior experience or some combination of current and prior experience.

For general guidance for the Environment and Molecular Epidemiology track and the Environment and Molecular Toxicology track, contact Professor Brandt-Rauf, 212-305-3464.

For general guidance for the Medical/Health Physics track, contact Professor Wu, 212-305-2256.

M.P.H., 45 Points

Core Course Requirements

Rule: Complete all (see page 20)

Department Requirements	Points
P6301 Environmental Health Sciences Applications	1
Capstone Requirement	
<i>Rule: Complete one</i>	
P9300 Topics in Environmental Health Sciences	4
P9350 & P9351 Master's Essay I & Master's Essay II	1,2

Requirements for the Environment and Molecular Epidemiology Track* and for the Environment and Molecular Toxicology Track*

Rule: Complete five

P6309 Biochemistry Basic to Environmental Health	3
P6310 Principles in Molecular Biology	3
P6313 Physiology	3

P6320 Radon, Risk and Remedy	3
P6322 Ecology 101	3
P6325 Medical Ecology	3
P6330 Radiation Science	3
P8301 Gene-Environment Interactions in Human Disease	3
P8305 Principles of Aerobiology	3
P8306 Environmental Hygiene	3
P8307 Molecular Epidemiology	3
P8308 Molecular Toxicology	3
P8309 Air Pollution	3
P8311 Industrial Toxicology	3
P8312 Systemic Toxicology	3
P8313 Toxicokinetics	3
P8319 Biological Markers of Chemical Exposure	3
P8325 Risk Assessment, Communication, and Management	3
P8380 Urban Environmental Planning	3
P8382 Endocrine, Reproductive, and Developmental Toxicology	3
P8432 Environmental Epidemiology	3
P9303 Hazardous Waste and Public Health	3
P9305 Ethical Issues in Occupational/Environmental Health	3
P9315 Occupational Medicine	3
P9316 Occupational Diseases	3
P9317 Case Studies in Risk Assessment and Environmental Policy	3
P9320 Water and Infectious Diseases	3
P9370 Journal Club in Environmental Health	1
P6390, P8390, P9390 Tutorials in Environmental Health Sciences	1 to 6
G4500 Cellular and Molecular Biology of Cancer	3
Requirements for the Medical/Health Physics Track*	
<i>Rule: Complete P8330 (a prerequisite for all the other courses in this track)</i>	
P8330 Radiation Physics	3
<i>Rule: Complete five</i>	
P8310 Health Physics	3
P8333 Radiation Oncology Practical Experience	3
P8340 Diagnostic Radiology Applications	3
P8356 Radiopharmaceuticals in Medical Imaging	3
P8360 Basic Experimental Methods and Nuclear Instrumentation	3
P8365 Nuclear Medicine Applications	3
P9319 Nuclear Medicine and Radiopharmacology	3
P9330 Diagnostic Radiological Physics	3
P9335 Radiation Therapy Physics	3

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Capstone Requirement

The Department of Environmental Health Sciences allows students to satisfy this requirement by one of two means: a capstone course or a master's essay. The capstone course focuses on one particular disease each semester and reviews all public health aspects of the disease, including normal biology, pathophysiology, epidemiology and biostatistics, genetic susceptibility factors, exposure characterization, exposure assessment, risk communication, and policy issues. The master's essay may represent empirical research, a fresh analysis of existing data, or a theoretical treatise concerning the environmental aspects of an issue of public health significance. The master's essay is recommended, but not required, of students considering doctoral training.

DOCTOR OF PUBLIC HEALTH (Dr.P.H.)

The Dr.P.H. degree programs are designed for professionals wishing to prepare for teaching, research, or advanced administrative positions in a major area of specialization within the broad field of public health.

To assure that all Dr.P.H. students have an understanding of the areas of knowledge and skills and experience basic to public health, all candidates for the Dr.P.H. must have earned the M.P.H. or its equivalent (defined as another master's degree appropriate to the public health field), plus the fulfillment of the core course requirements for the School's M.P.H. degree program. The Dr.P.H. degree is awarded upon completion of doctoral coursework after the master's degree, passing of a qualifying examination, and preparation and defense of an original scholarly dissertation.

Faculty members of the Department of Environmental Health Sciences supervise selected advanced students in doctoral studies leading to the degree of Doctor of Public Health (Environmental Health Sciences). Each student's program is planned according to individual career objectives and interests. Research opportunities abound, and doctoral students are given first priority in the selection of research projects.

DOCTOR OF PHILOSOPHY (Ph.D.)

The purpose of the Ph.D. program in environmental health sciences is to develop scholarly expertise in the field of environmental health, particularly in environmental toxicology and health physics. The emphasis of the program is on laboratory-based investigation into the pathophysiologic mechanisms by which chemical and physical agents in the environment affect human health. These investigations form the basis for the prevention and control of environmental health disorders. Thus, the study of environmental health also requires an understanding of the application of scientific knowledge in environmental risk assessment and environmental health policy. The program permits specialization according to the student's background and interest.

Undergraduate majors in the basic sciences, particularly biology and chemistry, are considered to have good preparation for this doctoral program.

Students are admitted for full-time study only. Further information on the program can be obtained from Professor Paul Brandt-Rauf at 212-305-3464. Application is made through the Graduate School of Arts and Sciences. Applicants may call 212-854-4737 and may also download a Ph.D. application from its Web site (<http://www.columbia.edu/cu/gsas/download.html>).

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6300 Environmental health sciences, 3 points.

This core course teaches how the basic human needs of clean air and water and a safe food supply are maintained but are often thwarted by nature and by our own ineptitudes. It satisfies the Environmental Health Sciences core requirement for the M.P.H. degree. An introduction to preventive health practices with an emphasis on environmental factors. Review of basic public health concepts as they relate to disease causation and prevention. Toxicology, especially carcinogenesis, is stressed. In cooperation with Population and Family Health, infectious diseases and the implications of population growth are discussed. Available techniques of preventive practices, such as controlling the quality of air, water, and consumer products, are described for both the workplace and the general environment. Lectures are followed by discussion groups. Exams, papers, and presentation.

P6301 Environmental health sciences applications, 1 point.

Primarily for students specializing in environmental health sciences. Faculty and leading practitioners of preventive health programs discuss various roles, professional problems, employment opportunities, and current trends in the field of environmental health sciences. Attendance and participation.

P6309 Biochemistry basic to environmental health, 3 points.

Provides sufficient information to our students lacking biochemistry and/or molecular biology training to successfully complete the curriculum in EHS. Biochemistry covers essential topics expected to be understood by any well-trained graduate of our program. Open to other students in public health who need more background in biochemistry. A prerequisite for *P6310 Principles of molecular biology* for those students who did not have sufficient biochemistry background. Three one-hour lectures per week with focus on the biochemistry of nucleic acids.

P6310 Principles in molecular biology, 3 points.

Prerequisite: *P6309*. Lecture and laboratory course covering basic and laboratory techniques of recombinant DNA technology. Emphasis on fundamental concepts of molecular biology. Hands-on experience in conducting recombinant DNA experiments. Approximately one hour of lecture and two hours of laboratory exercises per week. Grading is based on laboratory participation and final exam.

P6313 Physiology, 3 points.

An introductory human biology course with a focus on the homeostatic regulation of fluid compartments and molecular exchanges between the internal and external environments. Attention is given to basic information at the chemical, cellular, and tissue levels of biological organization. Particular emphasis is placed on organ systems involved in environmental chemical exposure and/or metabolism. A lecture and discussion classroom format is utilized. Evaluation of student performance by midterm and final exam.

P6320 Radon, risk and remedy, 3 points.

The radon problem has come to be seen as one of the most significant public health issues facing the populations of developed countries. The Assistant Surgeon General has stated that "Radon-induced lung cancer is one of today's most serious public-health issues." A reasonable estimate is that radon is implicated in 20,000 lung-cancer deaths per year in the United States. The radon problem has aspects that are highly multidisciplinary, ranging from biology to physics, geology, epidemiology, risk estimation and communication, and building construction, in addition to the legal, legislative, and real estate aspects. The course provides a broad appreciation of the facts (or lack of) and issues in the radon field. Aimed at a broad spectrum of students from various disciplines. No technical background is assumed in physics, biology, or risk assessment, though references to the more technical aspects are made available. There is currently a rapidly increasing job market specifically in the radon field. In-class multiple choice midterm exam and essay-based take-home final exam.

P6322 Ecology 101, 3 points.

Prerequisites: one course in biology and chemistry. The purpose of *Ecology 101* is to make students more aware of the ways in which inter-related life forms act in concert to form biomes (i.e., complex, mutually dependent communities). The concept of species and the niche, competition, succession, food chains and food webs, energy flow, productivity, and trophic levels are emphasized throughout. Each major biome is considered from these perspectives. Paper.

P6325 Medical ecology, 3 points.

Medical ecology combines aspects of both the applied and basic sciences to address problems of environmental disturbance. Global warming, sea level rise, the hydrological cycle, vector-borne diseases, air and water pollution, land use and abuse, energy consumption, and acid deposition are a few of the important issues examined in detail. Students are expected to have a basic background in science. Evaluation consists of a midterm exam (50 percent) and a group project. For the past five years, the student project has been The Vertical Farm and participation in it counts for 50 percent of the grade.

P6330 Radiation science, 3 points.

This one-semester course familiarizes the student with ionizing radiation: what it is, the type of instrumentation used to detect it, what its biological effects are, what risks and benefits are involved in the societal use of radiation (medical applications, laboratory techniques, nuclear energy). There are no prerequisites for attendance other than an open mind, curiosity, and a high school level scientific background. Successful completion of this course enables the student to recognize a situation involving radiation, reason out how to use radiation sources safely, and, in general, be able to carry out an intelligent (unbiased and educated) discussion on radiation issues. Two take-home exams (midterm and final).

P8301 Gene-environment interactions in human disease, 3 points.

Leading causes of morbidity and mortality result from complex interactions between genetic material and elements of the environment in

which humans live. Diseases that represent public health challenges and illustrate different mechanisms of gene-environment interactions are examined in seminar format. Students are evaluated on class participation, written critiques, and presentations.

P8305 Principles of aerobiology, 3 points.

Aerobiology is the study of the nature, transport, and health consequences of biogenic materials. Biogenic materials can include cell wall components of microorganisms, microbial volatile organic compounds, viruses, pollen grains, fungal spores, and allergens from plants, animals, and fungi. The more frequently mentioned specialties that aerobiology requires include aerosol physics, respiratory physiology, immunology, biometeorology, and biostatistics. An examination of the multifaceted aspects of aerobiology, focusing particularly on the exposure assessment of bioaerosols in the indoor environment.

P8306 Environmental hygiene, 3 points.

Primarily for students specializing in environmental sciences. Field measurements of environmental pollutants. Theoretical concepts used for instrumentation and techniques of practical application. Evaluation of environmental monitoring data. Exam and paper.

P8307 Molecular epidemiology, 3 points.

Covers methodologic and substantive issues in molecular epidemiology, including the application of biomarkers to the study of disease causation, to risk assessment, and to prevention. Specific topics include a review of the molecular biology relevant to commonly used biomarkers; issues of study design in etiologic and prevention research using biomarkers; logistical issues of biological sample collection, storage, and banking; criteria for selecting biomarkers; statistical approaches; application of biomarker data in risk assessment; and ethical considerations in biomarker research. The use of molecular epidemiology as a tool to understand interactions between external/"environmental" exposures and susceptibility factors and to identify "at risk populations" and individuals is emphasized. Students gain a working knowledge of the field and a familiarity with the current literature. Required readings, weekly homework assignments, and final term paper. Students also graded on class participation.

P8308 Molecular toxicology, 3 points.

Prerequisite: knowledge of biochemistry and/or organic chemistry. Chemical and biochemical principles governing toxicity of environmental pollutants, particularly carcinogens. Significance of entry route, dosage, tissue distribution, time course, metabolism, excretion, cellular action, and host susceptibility factors and assays for their detection. Molecular and cellular mechanisms of toxicity are discussed. Evaluations based on student presentations and midterm and final exams.

P8309 Air pollution, 3 points.

A broad view of air pollution from a human health perspective. Begins with an overview of sources, controls, transport/dispersion, and concentration trends of major outdoor air pollutants. Characteristics of human exposure to air pollution are covered, with emphasis on population time/activity patterns and indoor air pollution concentrations. Concludes with a series of lectures on the interactions of air pollutants with the human respiratory system and the scientific approaches used by researchers studying these phenomena. Midterm and final exams.

P8310 Health physics, 3 points.

Introduction to fundamental principles of health physics. Detailed discussion of aspects of nuclear physics important in health physics, radiation dosimetry in biological systems, health physics instrumentation. Includes guest lecturers and audiovisuals. Final exam and one research paper on subject of student's choice.

P8311 Industrial toxicology, 3 points.

Systematic study of major families of industrial chemicals and physical hazards, such as electromagnetic radiation. Basic mechanisms and toxic effects. Environmental examples of exposure. Midterm exam and final paper.

P8312 Systemic toxicology, 3 points.

Introductory toxicology course that first stresses basic principles concerning absorption, distribution, elimination, and toxicokinetics. The impact of toxic exposures on selected organ systems is then developed, with particular emphasis on kidney, lung, nervous system, liver, heart, skin, and reproductive system. For each organ system, a representative group of prototypical toxins is studied in depth. Midterm and final exams.

P8313 Toxicokinetics, 3 points.

Lecture and in-class practice to help develop the skill to analyze experimental data and evaluate literature reports regarding toxicokinetic aspects of chemical exposure. Emphasis on the ability to solve real problems. Topics cover the concept of compartment, analysis of blood and urine data, absorption kinetics, multi- or noncompartment analysis, PBPK modeling and risk assessment, and factors affecting toxicokinetic parameters of environmental toxicants. Midterm exam and final presentation.

P8319 Biological markers of chemical exposure, 3 points.

Prerequisites: organic chemistry and some biological science. The various methods for monitoring human exposure to environmental and occupational chemicals are discussed with the major focus on genotoxic agents. Methods for monitoring exposure to kidney and immune system toxins are also discussed. Details of specific laboratory methodology and application to epidemiologic studies are covered. Format is lectures and discussion of original research papers. Evaluations are based on midterm and final exams and presentation.

P8325 Risk assessment, communication, and management, 3 points.

Outline of the process of risk assessment, involving risk identification, concentration assessment, exposure assessment, quantitative toxicology, and risk characterization. Emphasis on derivation of assumptions and on the nature and extent of uncertainties in risk assessment. Consideration of the use of risk assessment in the separate processes of risk management and of risk perception and communication. Midterm and final exams.

P8330 Radiation physics, 3 points.

Introduction to atomic and nuclear physics and the quantum mechanics interaction of ionizing radiation with matter. Other subjects include radiation dosimetry, instrumentation, radiation protection (internal and external), and, briefly, the chemical and biological effects of radiation. Material is at beginning graduate level. Exercises, group work. Midterm and final exam. A prerequisite for all other medical/health physics courses.

P8333 Radiation oncology practical experience, 3 points.

Application of medical physics to cancer therapy. One day weekly in a hospital setting under close supervision. Dosimetry, calibrations, and treatment planning. Four to six clinically oriented laboratory-type projects are assigned.

P8340 Diagnostic radiology applications, 3 points.

Practical applications of diagnostic radiology for various measurements and equipment assessments. Includes instruction and supervised practice in radiation safety procedures, image quality assessments, regulatory compliance, radiation dose evaluations, and calibration of equipment. Topics include x-ray generator calibration, focal spot measurements, radiation output measurements, half-value layer measurements, and others. Objective is familiarization with routine operation of test instrumentation required in diagnostic medical physics. Research reports.

P8302 Basic experimental methods and nuclear instrumentation, 3 points.

Basic experimental techniques, atomic and nuclear devices, and instrumentation common to many areas of medical and health physics. Combines lectures on the theory of operation of basic nuclear instruments with hands-on operation. Emphasis on laboratory performance by students of required experiments and some elective experiments based on specific interests.

P8365 Nuclear medicine applications, 3 points.

Practical applications of nuclear medicine theory for processing and analysis of clinical images, radiation safety, and quality assurance programs. Topics may include tomography, instrumentation, functional imaging, and the kinetics and biodistribution of radiopharmaceuticals. Research reports.

P8380 Urban environmental planning: the basis in public health, 3 points.

The 19th-century development of urban planning as a profession and academic discipline had its basis in public health initiatives, e.g., reforming conditions in tenement housing, creating urban water supply systems, and developing waste management infrastructure. All these initiatives to improve the daily life of urban residents reflect the common origins of the urban planning and public health professions in devising solutions for pressing environmental problems. Contemporary environmental challenges are creating a new convergence of the disciplines of urban planning and public health in the field of environmental planning. This course aims to provide the ideas and information necessary to integrate environmental viability and sustainable development with other primary concerns of planners and public health practitioners, namely, equity, healthy communities, and economic development. Covers the major concepts of public health research and health sciences relevant to planners and describes specific examples of local application. Unifying theme for each topic is the current state of affairs and possible impact on the future of urban planning and public health practice.

P8382 Endocrine, reproductive, and developmental toxicology, 3 points.

Prerequisite: completion of an introductory course in toxicology, pharmacology, or physiology. The goal of this survey, conducted in seminar fashion, is to provide an overview of three interrelated areas in toxicology: endocrine, reproductive, and developmental. The course is divided into three sections. Each deals with current understanding of the structure and function of the system and organs under consideration, the history of toxicological knowledge in that area, and current topics of interest. Reading and discussion for the seminar require a general knowledge of physiology, pharmacology, and/or toxicology, and an understanding of public health. The conclusion of the survey briefly touches on risk assessment for these three areas of toxicology. Students actively participate in the class at all levels: library and literature research; preparation of written summaries of chemical toxicology data relevant to endocrine, reproductive, and developmental toxicology; presentation of this material for class discussion; and active participation in class discussion. Grading on three written and oral presentations.

P9300 Topics in environmental health sciences, 4 points.

Intended as a capstone experience for students who are completing their coursework, this seminar-style course focuses on one particular disease each semester. Reading original research papers, faculty and students review all aspects of the disease of interest, considering the normal biology, pathophysiology, epidemiology and biostatistics, genetic susceptibility factors, exposure characterization, exposure assessment, and public health policy issues. Students read a core list of assigned readings each week; they also explore independently an assigned subtopic on which they report back to the class. In addition, each semester experts are brought in to discuss particular aspects of the disease.

P9303 Hazardous waste and public health, 3 points.

Definition, classifications, and nature of hazardous and toxic wastes. Storage, transportation, treatment, and disposal techniques proposed and being supplied. Includes chemical and biological treatment, incineration, and land burial. Critical environmental issues and multimedia pollution prevention by waste minimization.

P9305 Ethical issues in occupational/environmental health, 3 points.

Covers areas of current interest in occupational and environmental health that raise significant ethical issues, such as genetic screening in the workplace, cost-benefit analysis in standard setting, and the right to know. Purpose is to increase awareness of the ethical problems in this field and to provide a framework for analysis of these problems. Class presentations and papers.

P9315 Occupational medicine, 3 points.

Introduction to the practice of occupational medicine. Topics include the roles of medical departments in corporations, clinical and administrative responsibilities, health screening, wellness programs, epidemiological studies, data management, risk assessment management, legal and ethical issues, and related subjects. Exploration of interfaces with associated professions, such as occupational health nursing and industrial hygiene, and with academic institutions. Exam.

P9316 Occupational diseases, 3 points.

Organ system approach to the diagnosis, treatment, and prevention of occupational and environmental diseases. Midterm and final exams.

P9317 Case studies in risk assessment and environmental policy, 3 points.

The scientific basis for recent government decision making on major public health and environmental issues. Specific aspects include a critical assessment of the available scientific database, the process of risk assessment, and the political component of decisions. Case studies include health-based standards for vinyl chloride, lead, pesticides, and hazardous wastes, and environmental policy involving acid rain and the greenhouse effect. Seminar. Research paper.

P9319 Nuclear medicine and radiopharmacology, 3 points.

Review of physical bases of nuclear medicine and discussion of imaging instrumentation and computer diagnosis. Other topics include radionuclide generator systems and quality control, radiopharmaceutical preparations and quality control, chemistry and radiopharmacology of radionuclides, and radiopharmaceuticals for diagnostics and therapeutics. Midterm and final exams, term paper.

P9320 Water and infectious diseases, 3 points.

Prerequisites: undergraduate biology that included basic biochemistry, immunology, and microbiology, as well as whole organism biology. Water plays a pivotal role in the life cycles of many infectious diseases throughout the world. This course explores several contexts in which water is a crucial link in the generation of disease, namely: (1) water-borne pathogens as contaminants of drinking water, for example, cholera and cryptosporidiosis; (2) diseases that result from direct, external contact with water, e.g., schistosomiasis; and (3) water as a niche for arthropod vectors of human diseases, for example, the mosquito vectors of yellow fever, filariasis, and malaria. The history, transmission cycles, epidemiology, role of water, etiologic agents, pathogenesis, and prevention strategies are examined for several representative diseases.

P9330 Diagnostic radiological physics, 3 points.

Description of x-ray generators and tubes followed by survey of image quality concepts, introductory fluoroscopy, image intensifiers, and cine systems. The second part covers mammography, CT scanners, ultrasound, and magnetic resonance imaging. Midterm and final exams.

P9335 Radiation therapy physics, 3 points.

Review of x-ray production and fundamentals of nuclear physics and radioactivity. Detailed analysis of radiation absorption and interactions in biological materials as specifically related to radiation therapy and radiation therapy dosimetry. Surveys of use of teletherapy isotopes and x-ray generators in radiation therapy plus the clinical use of interstitial and intracavitary isotopes. Principles of radiation therapy treatment planning and isodose calculations. Problem sets taken from actual clinical examples are assigned. Exam.

P9350 Master's essay in environmental health sciences I, 1 point.

For students who plan to enter the doctoral program, the *Master's essay in environmental sciences* is strongly recommended. The essay may represent empirical research, a fresh analysis of existing data, or a theoretical treatise. The student first registers for a one-semester, 1-point course (*Master's essay in environmental sciences I*) to develop a proposal in consultation with a faculty supervisor. This proposal is submitted to the Master's Programs Committee for approval.

P9351 Master's essay in environmental health sciences II, 2 points.

Prerequisite: *P9350*. After the successful completion of *P9350 Master's essay in environmental health sciences I*, students may register for *P9351 Master's essay in environmental health sciences II* to carry out the actual writing of the essay under the guidance of a supervisor. The supervisor, with a co-reader, reviews the master's essay.

P9370 Journal club in environmental health sciences, 1 point.

Students are required to read primary research papers and orally present a critical review of their readings. Course topic, related to current studies in environmental sciences, changes each semester as determined by the instructor. Sample topics include the effects of ozone depletion on cells, asthma in the urban environment, recent advances in the use of biomarkers in predicting cancer, health effects of heavy metals in the environment, and waterborne pathogens and disease. Required course for Dr.P.H. and Ph.D. students in Environmental Health Sciences.

P6390, P8390, P9390 Tutorials in environmental health sciences, 1 to 6 points.

Tailored to the particular interests and needs of individual students. May take many forms—literature reviews, laboratory experiments, field trips, special studies, or other learning experiences that enrich and contribute to the student's program.

EPIDEMIOLOGY

Degrees offered:

M.P.H.	49	Dr.P.H.	50
M.S.	50	Ph.D.	50

Department of Epidemiology

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Department Coordinator: Liliane Zaretsky

Faculty

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Ezra Susser, Professor of Epidemiology
(also Psychiatry)

M.D., Columbia, 1982; Dr.P.H., 1993

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B.A., Hamline, 1958; Ph.D., New York University, 1968

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Ph.D., Cornell, 1955

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Geoffrey R. Howe, *Anna Cheskis Gelman and Murray Charles Gelman Professor of Epidemiology*

B.Sc., London, 1965; Ph.D., Leicester (England), 1969

Elaine Larson, *Professor of Epidemiology*

(also Professor of Pharmaceutical and Therapeutic Research in Nursing) B.S., Washington, 1965; M.A., 1969; Ph.D., 1981

Bruce G. Link, *Professor of Epidemiology*

(also Sociomedical Sciences) (in Psychiatry) B.A., Earlham, 1971; M.S., Columbia, 1980; Ph.D., 1982

Walter Ian Lipkin, *Professor of Epidemiology*

(also Neurology) (also Pathology) B.A., Sarah Lawrence, 1974; M.D., Rush Medical, 1978

Richard Mayeux, *Professor of Epidemiology*

(also Gertrude H. Sergievsky Professor of Neurology) (also Psychiatry) (in the Sergievsky Center) (in the Taub Institute) B.S., Oklahoma, 1968; M.D., 1972; M.S., Columbia, 1991

Alfredo Morabia, *Professor of Clinical Epidemiology*

M.D., Geneva, 1978; M.A., Johns Hopkins, 1987; Ph.D., 1989

Alfred I. Neugut, *Professor of Epidemiology*

(also Medicine) B.A., Columbia, 1972; M.D., Ph.D., 1977; M.P.H., 1983

Ruth Ottman, *Professor of Epidemiology (in the Sergievsky Center)*

B.A., California (Berkeley), 1975; Ph.D., 1980

Victor Penschaszadeh, *Professor of Clinical Epidemiology*

M.D., Buenos Aires (Argentina), 1964; M.S., Johns Hopkins, 1971

Ralph Sacco, *Professor of Epidemiology*

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Ruby Senie, *Professor of Clinical Epidemiology*

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Thomas Yager
B.A., Harvard, 1965; Ph.D., Columbia, 1974

ADJUNCT PROFESSORS

Seth F. Berkley
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INSTRUCTOR

Lydia Zablotska, *Ph.D.*

SPECIAL LECTURERS

Anna C. Gelman, *M.P.H. (Emerita)*

Inge F. Goldstein, *Dr.P.H.*

Zena A. Stein, *M.B., B.Ch. (Emerita)*

Mervyn W. Susser, *M.B., B.Ch., Dr.P.H. (Emeritus)*

Overview

Epidemiology is one of the foundation stones of public health. Epidemiologists study the distribution and causes of disease in human populations; they also develop and test ways to prevent and control disease. Epidemiology is critical to disease prevention because it sheds light on why a particular disease originates, how it spreads, and its effective control. It encompasses infectious diseases as well as chronic diseases. The discipline of epidemiology has a conceptual theory, a specific methodology, and a body of substantive knowledge. An academic background in health, the biological or social sciences, or in mathematics and statistics is desirable for candidates wishing to enter this field. Demonstration of quantitative skills is required for admission. Admission is for fall term only.

The large faculty works in a collaborative environment in diverse areas such as infectious disease, chronic disease, social epidemiology, neurodevelopmental epidemiology, molecular epidemiology, psychiatric epidemiology, and genetics, with a move to more global work. The

department teaches and practices epidemiology with an eye toward active engagement in public health; while there is a focus on the basic methods and philosophy of the discipline, we also emphasize the practical public health benefit. This is evident in all of the major research programs, as illustrated by the following:

1. The benchmark public health event of our times is the HIV pandemic, and specifically, the devastation it has wrought on sub-Saharan Africa. The department is the home of a major effort to respond to this public health crisis, including prevention and treatment in the context of developing countries, the use of antiretroviral regimes, the development of vaccines and other prevention strategies, the promotion of modified breast-feeding practices, and the study of various modes of transmission.
2. The most dramatic local (i.e., NYC) public health event in recent times was the terrorist attack of September 11, 2001. The department has taken a leading role in documenting the massive impact of this event on the mental health of New Yorkers and in helping the city to develop treatment models and standards for preparedness including mental health services.
3. Emerging infections such as HIV, West Nile virus, and SARS have become a threat to global health. Scientists with expertise in molecular and genetic epidemiology are essential for dealing with these new diseases. The department's faculty plays a central role in the identification and control of new pathogens (including preparedness for bioterrorism).
4. The Injury Prevention Program at Harlem Hospital (part of the Injury Free Coalition for Kids and supported by the Robert Wood Johnson Foundation) is a model of how a successful local program has become a nationwide example for child injury prevention. It is also an example of how our department, Harlem Hospital, Columbia University, and the state and city departments of health worked together along with a wide range of neighborhood groups to create significant change.
5. The Department of Epidemiology has numerous ties to the Department of Health of New York City, working together on the aftermath of the WTC disaster, bioterrorism and preparedness, mental health, HIV/AIDS and public health, antismoking initiatives, and long-standing programs, such as the above-mentioned Injury Prevention Program.

Academic Programs

MASTER OF PUBLIC HEALTH (M.P.H.)

This concentration emphasizes the basic epidemiologic concepts and skills essential for research, program planning, and evaluation. These include (1) a conception of health and disease as determined by the interactions of biological, environmental, and societal variables; (2) the design of epidemiologic studies, including field surveys, and the collection, analysis, and interpretation of large amounts of data; and (3) an understanding of the epidemiologic principles and methods

that serve as the foundation for rational strategies of public health intervention. The program aims to prepare students for careers in public health with a focus on research and community diagnosis, public health action, and program evaluation.

Courses in epidemiology cover methodological, biomedical, and sociomedical areas. The selection of specific courses depends on each student's background and major areas of interest. In addition to a general orientation to the principles of epidemiology and the design and application of epidemiologic studies, students may focus on epidemiologic approaches to one of several special areas of public health concern, such as chronic diseases, child health and development, psychiatric problems, or evaluation of programs and services. Other courses focus on methods in epidemiology, including study design, measurement, and statistical issues. Four semesters of full-time coursework are usually required. A master's thesis, usually undertaken in conjunction with the practical experience, is required for the concentration. Students who meet the practicum requirement through prior experience prepare the master's thesis on a subject agreed upon with the advisor.

M.P.H., 45 Points*

Core Course Requirements

Rule: Complete all (see page 20)

Department Requirements	Points
<i>Rule: Complete all</i>	
P8100 Applied Regression Analysis	3
P8120 Analysis of Categorical Data	3
P8400 Epidemiology III: Applied Epidemiologic Analysis	3
P8438 Epidemiology II: Design and Conduct of Observational Epidemiologic Studies	3
P9419 Master's Thesis in Epidemiology I: Proposal	1
P9420 Master's Thesis in Epidemiology II: Thesis	2
P9480 Research Seminars in Epidemiology	0.5

Track Requirements and Electives

Rule: Complete three

P6438 Introduction to Public Health Genetics	
P6781 The Use of Large-Scale National Health Care Data Sets	3
P8301 Gene-Environment Interactions in Human Disease	3
P8307 Molecular Epidemiology	3
P8401 The Epidemiological Evaluation of Drug Safety	3
P8403 Nutritional Epidemiology	2
P8404 Epidemiology of Genetics and Aging	3
P8405 Genetics in Epidemiology	3
P8406 Epidemiology of Infectious Diseases I	3
P8410 Reading Seminar for Psychiatric Epidemiology I	3
P8411 Reading Seminar in Psychiatric Epidemiology II	3
P8413 Breast Cancer as a Public Health Issue	3
P8414 Cancer Epidemiology	3
P8417 Selected Problems of Measurement in Epidemiology	3

P8419 Neurobiology and Genetics of Psychiatric Disorders	3
P8421 Intro to Clinical Psychiatry for Epidemiology and Public Health	3
P8422 Perinatal Epidemiology	3
P8432 Environmental Epidemiology	3
P8440 Epidemiology of Cardiovascular Diseases	3
P8442 Epidemiology and Control of Tuberculosis	3
P8457 Epidemiology of Asthma	3
P8465 Epidemiology of HIV and AIDS	3
P8469 Epidemiology of Malaria	3
P8470 Epidemiology of Alcohol and Drug Use Disorders	3
P8473 Design of Infectious Disease Studies	2
P8475 Topics in Emerging Infectious Diseases	3
P8480 Vaccines and Public Health	3
P8482 Outcomes Research: Methods and Public Health Implications	3
P8488 Epidemiologic Research Topics in Developing Countries	3
P8499 Field Methods in Epidemiology	3
P8679 Investigative Methods in Humanitarian Emergencies	3
P8725 Global AIDS Policy	3
P8740 History of Epidemiology	3
P9407 Methods in Molecular/Genetic Epidemiology	3
P9408 Epidemiology of Infectious Diseases II	3
P9493 Topics in the Epidemiology of Neurological Disorders	3

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

MASTER OF SCIENCE (M.S.)

This program enables students to gain a command of the major concepts and techniques of epidemiology, including a grounding in biostatistics. The degree is intended for professionals possessing another terminal graduate-level degree in a related field. Three semesters of part-time academic work and a master's thesis are required.

M.S., 30 Points*

Department Requirements	Points
<i>Rule: Complete all</i>	
P8100 Applied Regression Analysis	3
P8120 Analysis of Categorical Data	3
P8400 Epidemiology III: Applied Epidemiologic Analysis	3
P8438 Epidemiology II: Design and Conduct of Observational Epidemiology	3
P9419 Master's Thesis in Epidemiology I: Proposal	1
P9420 Master's Thesis in Epidemiology II: Thesis	2
P9480 Research Seminars in Epidemiology	0.5
Track Requirements and Electives	
<i>Rule: Complete two</i>	
P6781 The Use of Large-Scale National Health Care Data Sets	3
P8301 Gene-Environment Interactions in Human Disease	3

P8307 Molecular Epidemiology	3
P8401 The Epidemiological Evaluation of Drug Safety	3
P8403 Nutritional Epidemiology	2
P8404 Epidemiology of Genetics and Aging	3
P8405 Genetics in Epidemiology	3
P8406 Epidemiology of Infectious Diseases I	3
P8410 Reading Seminar in Psychiatric Epidemiology I	3
P8411 Reading Seminar in Psychiatric Epidemiology II	3
P8413 Breast Cancer as a Public Health Issue	3
P8414 Cancer Epidemiology	3
P8417 Selected Problems of Measurement in Epidemiology	3
P8419 Neurobiology and Genetics of Psychiatric Disorders	3
P8421 Intro to Clinical Psychiatry for Epidemiology and Public Health	3
P8422 Perinatal Epidemiology	3
P8432 Environmental Epidemiology	3
P8440 Epidemiology of Cardiovascular Diseases	3
P8442 Epidemiology and Control of Tuberculosis	3
P8457 Epidemiology of Asthma	3
P8465 Epidemiology of HIV and AIDS	3
P8470 Epidemiology of Alcohol and Drug Use Disorders	3
P8473 Design of Infectious Disease Studies	2
P8475 Emerging Infectious Diseases	3
P8480 Vaccines and Public Health	3
P8482 Outcomes Research: Methods and Public Health Implications	3
P8488 Epidemiologic Research Topics in Developing Countries	3
P8499 Field Methods in Epidemiology	2
P8679 Investigative Methods in Humanitarian Emergencies	3
P8725 Global AIDS Policy	3
P8740 History of Epidemiology	3
P9407 Methods in Molecular/Genetic Epidemiology	3
P9408 Epidemiology of Infectious Diseases II	3
P9493 Topics in Epidemiology of Neurological Disorders	3

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

DOCTOR OF PUBLIC HEALTH (DR.P.H.)

The Doctor of Public Health degree program prepares professionals in biomedical and sociomedical fields for advanced careers as epidemiologists. This professional degree is usually suited to candidates with primary training in a related field, such as medicine, nursing, dentistry, anthropology, psychology, sociology, or social work. The Dr.P.H. degree program is targeted toward professionals with an M.D., Ph.D., or other doctoral level degree and an M.P.H., who have had substantial experience working on health-related issues. Applicants should be seeking further doctoral level methodologic training to enhance research in a defined area of substantive expertise. While the required coursework for the Dr.P.H. and Ph.D. degree programs is identical, the qualifying exams and dissertation required for the Dr.P.H. degree are designed to be completed in a shorter period of time.

DOCTOR OF PHILOSOPHY (Ph.D.)

The goal of the Ph.D. program in epidemiology is to train students for future careers as research epidemiologists in academic, not-for-profit, governmental, and private sector settings. Upon completion of the Ph.D., students are able to identify important public health issues that merit epidemiologic study and conduct independent, scholarly research that advances knowledge about the causes, prevention, and amelioration of human disease. The successful Ph.D. graduate is prepared to teach graduate students and health professionals in academic and other settings and to work collaboratively with health professionals in other disciplines on research and applied projects that include epidemiologic elements.

The Department of Epidemiology at the Mailman School of Public Health has research strengths, faculty, and training in the following areas: cancer epidemiology, cardiovascular epidemiology, environmental epidemiology, genetic epidemiology, infectious disease epidemiology, epidemiologic methodology, neuroepidemiology, perinatal and reproductive epidemiology, psychiatric epidemiology, and social epidemiology. A limited number of fellowships are available in some of these areas.

The Ph.D. program is administered by the Subcommittee on Epidemiology under the auspices of the Graduate School of Arts and Sciences (GSAS). As such, GSAS rules are followed for tuition payment, residence requirements, and preparation and defense of the dissertation.

Applications for admission to the Ph.D. program are available from GSAS, 108 Low Library, 212-854-6729, and the Department of Epidemiology, 212-305-9412. They are also available on the Web at <http://www.columbia.edu/cu/gsas/download.html>. Completed applications should be submitted to GSAS by February 1. The Doctoral Committee begins to review applications in February for admission the following September.

We look for applicants who are prepared to master the challenging courses and research that make up our doctoral program. Most applicants have a master's degree in epidemiology or a closely related field. At least one semester of calculus and a strong background in the natural and/or social sciences are strongly recommended. We also look for applicants who are committed to public health research and practice. Thus, past research and/or other work experience in public health is encouraged. The statement of purpose, which is part of the application, is very important. We look for students who have a clear understanding of what epidemiology entails and who have well-focused research interests and career goals.

Applicants should inquire in the department about possible sources of financial support that may be available. These sources include training fellowships in some specialties (e.g., cancer, infectious disease, genetics, psychiatric disorders), other fellowships (e.g., Kellogg) and scholarships, and research positions. Additional sources of support may become available over the course of the student's academic training. Note, some fellowship and scholarship programs

have separate application procedures and deadlines, and make decisions about funding that do not coincide with decisions regarding admission to the Ph.D. program. Applicants should check the requirements in each program of interest and, where possible, speak with the program director and/or coordinator about content, application procedures, and available funding.

Training Programs in Epidemiology

The centers and training programs offer multidisciplinary collaboration of researchers, faculty, students, and policymakers. Training is through didactic courses and research via academic courses, seminar series, and opportunity to participate in ongoing research or independent research projects. Centers or training programs offer funding for pre- and postdoctoral study as well as research opportunity and funding to attend conferences. They are the mainstay of our academic programs in that they validate the quality of our faculty and are a mechanism for drawing excellent students to our programs. The following are some of the training programs in the Department of Epidemiology:

Cancer Epidemiology

In its fifteenth year, the Training Program in Cancer Epidemiology is actually a multidisciplinary program involving faculty and trainees from three departments in the School of Public Health—Epidemiology, Biostatistics, and Environmental Health Sciences. There are ten trainees, half predoctoral and half postdoctoral, all engaged in cancer-related studies and research. Weekly seminars bring all the participants together for presentations by the trainees, and the diversity of the group leads to much cross-fertilization and sharing of ideas. Research projects include studies in the classical and molecular epidemiology of lung cancer, liver cancer, breast cancer, colorectal cancer, and other GI tract cancers. Preventive and behavioral aspects of oncology, as well as health services research, are also emphasized. Internationally renowned experts in nutritional and radiation epidemiology participate, and there are several international cohort and other studies in such locales as Chernobyl, Bangladesh, Taiwan, and the Netherlands. Emphasis is placed on learning clinical and pathologic principles of cancer, as well as gaining an appreciation of advanced biostatistical methods. For more information on this program, go to <http://www.mailman.hs.columbia.edu/epi/research/cancer.html>.

Fellowship in Family Planning Clinical Care and Research

The Family Planning Postdoctoral Fellowship is one of only six fellowships in the nation that focuses on family planning. It is the only fellowship in the nation that provides high-level research and clinical skills in family planning and abortion. The fellowship is designed as a one- or two-year program; the two-year option provides the opportunity to earn a Master of Science degree in public health while working with well-respected and innovative leaders in the field. The fellowship is also designed to develop extensive research and clinical skills, preparing fellows to take the lead in innovative approaches to family planning in the United States and internationally. More information on this fellowship is

available at <http://cpmcnet.columbia.edu/dept/obgyn/fellowship/family-planning/family-planning.html>.

Genetics and Complex Disorders (GCD) Training Program

The goal of the GCD program is to train postdoctoral (M.D. and Ph.D.) and predoctoral fellows in genetic epidemiology and statistical analysis of psychiatric and other complex diseases. Our mission is to train people who will be aware of all aspects of human genetic studies: study design, clinical aspects, phenotype definition, laboratory issues, and statistical analysis. The field of genetics is changing rapidly, and successful investigators must be competent in a broad array of techniques, must be able to speak the languages of fields outside their own, and must be able to collaborate effectively with scientists in other fields. Training has both a didactic and a research component. The didactic component includes both an academic program and a series of practical laboratory rotations. The academic program comprises a series of academic courses in human genetics, epidemiology, statistical genetics, computer simulations, research communication skills, and responsible conduct of research. The laboratory rotations take place in a number of laboratories at Columbia University, where a rich and broad variety of genetic studies are being carried out.

Applicants must be U.S. citizens or permanent resident aliens. The GCD program is affiliated with the Departments of Biostatistics and Epidemiology at the Mailman School of Public Health and the Department of Psychiatry at Columbia University. Additional information on this program is available at <http://cpmcnet.columbia.edu/dept/sp/epi/gcd/index.html>.

Infectious Disease Epidemiology Training Program

The Infectious Disease Epidemiology Training Program was established in 2001 with the goal of developing investigators with expertise in the epidemiology of infectious diseases. Funded by the National Institute of Allergy and Infectious Diseases (NIAID), trainees selected for this program are expected to conduct clinical or laboratory-based research with one of the participating faculty mentors. In addition, they are required to obtain a master's or doctoral degree with a focus in infectious disease epidemiology. The goal is that graduates of the program will serve as future leaders in the effort to rapidly identify, prevent, and manage emerging and reemerging infections in a dramatically changing global environment.

Eligible candidates are expected to pursue a Master of Public Health or doctoral degree as part of this program. For more information, go to <http://www.mailman.hs.columbia.edu/epi/research/Infectious/IDETP-program.html>.

Neuroepidemiology Training Program

The mainstay of the Gertrude H. Sergievsky Center's training efforts has been the postdoctoral fellow education program in neuroepidemiology. This program capitalizes on the strengths of the Department of Neurology, the Departments of Epidemiology and Biostatistics in the Mailman School of Public Health, and

the interdisciplinary Gertrude H. Sergievsky Center. It is currently the only NIH-funded neuroepidemiology program. The goal of the program is to prepare neurologists and other research scientists for research careers in the epidemiology of neurologic disorders. Since its inception more than fifteen years ago, the program has trained twenty-four neurologists and neuroscientists who are now professors (two), associate professors (five), assistant professors (eight), or career research scientists at the NIH and elsewhere (nine). Many of the trainees have successfully competed for NIH funding and have established disease-specific neuroepidemiology research programs. The program can only support United States citizens, but the existence of the program has attracted neurologists internationally who have come with their own funding, either from their local government or through the Fogarty Center. Additional information on this program is available at <http://www.mailman.hs.columbia.edu/epi/research/neurodev.html>.

Psychiatric Epidemiology

The Columbia University Psychiatric Epidemiology Training Program was created in 1972 to train individuals from different disciplines in psychiatric epidemiology. It is one of only a small handful of programs designed to provide research training in the epidemiology of mental disorders. The program has trained 115 researchers, most of whom have gone on to make important contributions and some of whom have become leaders in the field. The program provides training for nine postdoctoral and five predoctoral fellows. The postdoctoral fellows are a mix of M.D. psychiatrists and Ph.D. social scientists. The precise mix of pre- and postdoctoral fellows varies from year to year, depending on the applicant pool and program needs.

The unifying theme for training involves the use of theory, study design, or measurement innovation to allow previously untested ideas to be tested. In any particular application, one or another of these (theory, design, measurement) might be emphasized, but the mix achieved should always lead to the testing of an idea that increases our understanding of the onset, course, or consequences of mental disorders. Thus, in training fellows, we seek to emphasize that to represent an advance, a research project must test a previously untested idea and that the most likely avenues in which to achieve such tests are theoretical/conceptual advances, well-crafted designs, and innovations in measurement.

To achieve this training goal, fellows complete a series of courses in the Department of Epidemiology at the Mailman School of Public Health (some earning an M.S. in epidemiology) and then apply the knowledge from the courses in field placements with research faculty who exemplify how these elements combine and lead to successful tests of important ideas. Continuously throughout this process, trainees develop a breadth of knowledge concerning important work done nationally and internationally through literature, seminars, and attendance at conferences. More information on this program is available at <http://www.mailman.hs.columbia.edu/epi/research/pet.html>.

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6400 Principles of epidemiology I, 3 points.

Epidemiology is one of the pillars of public health. Epidemiologists study the distribution and determinants of disease in human populations; they also develop and test ways to prevent and control disease. The discipline covers the full range of disease occurrence, including genetic and environmental causes for both infectious and noninfectious diseases. Increasingly, epidemiologists view causation in the broadest sense, as extending from molecular factors at the one extreme, to social and cultural determinants at the other. This course introduces students to the theory, methods, and body of knowledge of epidemiology. Designed for students in all fields of public health, its primary objective is to teach the basic principles and applications of epidemiology. Part of the core course requirement for the M.P.H.

P6438 Introduction to public health genetics, 3 points.

Reviews the major topics of interest in genetics and public health. Designed to engage students in the critical analysis of the main current contributions of genetics to public health, keeping a focus on gene-environmental interactions as a background of causation and intervention. Covers the following major topics: (1) Role and type of genetic factors that contribute to disease, (2) population prevalence and distribution of morbidity influenced by genetic factors, (3) public health approach to primary, secondary, and tertiary prevention of genetic disorders, (4) concepts, goals, and strategies of genetic services, and (5) ethical, social, and legal issues in public health genetics.

P8400 Epidemiology III: applied epidemiologic analysis, 3 points.

Prerequisites: *P8120* and *P8438*. This course, designed for Epidemiology students, both doctoral and master's, is the third methods course in the series of epidemiologic methods courses. It focuses on analytic methods and epidemiologic design strategies. The class meets each week for a two- or three-hour session. Lectures focus on the theoretical aspects of relevant analytic methods based on Rothman and Greenland's *Modern Epidemiology*. Laboratory sessions meet separately during the week for additional help in performing analyses using the SAS (Statistical Analysis System) programming language. Students are provided with epidemiology data set(s) and are asked to do analyses, to be discussed in class the following week. Restricted to Epidemiology students.

P8401 Epidemiological evaluation of drug safety, 3 points.

Covers the effects of drugs from an epidemiologic perspective. Case-control, cohort, and other observational methods and controlled trials are considered from the perspective of evaluating drug safety and effectiveness. Students are graded on the weekly preparation of critiques of published papers and on the preparation of protocols (to be presented at the end of the course) designed to study topical, real-life issues.

P8403 Nutritional epidemiology, 2 points.

Prerequisite: *P6400*. The use of epidemiology to study the role of nutrition in health and disease with an emphasis on methodological and measurement issues in dealing with nutrition and diet information. Topics covered include selection of data bases for nutrient analysis, dietary assessment instruments and methods, anthropometric and biochemical assessment of nutritional status, design issues in dietary studies, and the relationship of diet to disease using examples from heart disease, cancer, obesity, and osteoporosis literature. Lectures and discussions. A short class presentation and review paper.

P8404 Epidemiology of genetics and aging, 3 points.

Prerequisite: *P8438*. Introduction to research in aging from both the epidemiologic and human genetics perspectives. Methodologic and substantive issues related to aging health profiles are discussed. Topics include study design, modeling of aging, active life expectancy, geriatric conditions, statistical genetics methods, gene mapping of aging phenotypes, human model system, and application to health policy. Required readings, three papers, and one problem set.

P8405 Genetics in epidemiology, 3 points.

Prerequisites: *P8120* and *P8438*, or their equivalents. Methodologic and substantive aspects of genetics in epidemiology, including an introduction to the biological basis of human heredity, complexities in studying the genetics of human disease, and study designs used to disentangle genetic and nongenetic contributions to disease etiology. Topics include methods for collection of valid family history data, familial aggregation studies, gene-environment interaction, twin studies, segregation analysis, and linkage analysis. Required readings, weekly homework assignments, and two take-home exams.

P8406 Epidemiology of infectious diseases I, 3 points.

Prerequisite: *P6400* or the instructor's permission. Undergraduate-level courses in general microbiology or molecular biology helpful, but not required. Study of the epidemiology of infectious diseases of national and international importance. Methods in outbreak investigation and molecular epidemiology as applied to infectious diseases are emphasized. Course lectures are centered around general topics related to infectious disease epidemiology, with several specific diseases or disease processes examined in detail as examples for each major mode of transmission. Through exercises, lectures, and readings, students have the opportunity to apply infectious disease epidemiology methods to specific health problems. Lectures are teleconferenced with the NYC Department of Health. Exercises, midterm, and final required.

P8410 Reading seminar in psychiatric epidemiology I, 3 points.

Reading and discussion of selected works on the relationship between sociocultural factors and psychiatric disorders. Emphasis is on public attitudes, selection factors in treatment, and treatment evaluation. Special emphasis is placed on problem formulation. Students learn to generate research problems through a careful consideration of available literature. Lectures and discussion along with symposia to develop and defend a position on a current controversy in psychiatric epidemiology. A short paper (five to fifteen pages) on symposia topic and a take-home exam.

P8411 Reading seminar in psychiatric epidemiology II, 3 points.

Reading and discussion of selected works on relations between sociocultural factors and psychiatric disorders in the areas of prevalence, public attitudes, clinical diagnosis, etiology, and treatment.

P8413 Breast cancer as a public health issue, 3 points.

A multidisciplinary overview of the complexity of breast cancer, from the public health perspective. Topics discussed and literature reviewed are drawn from many disciplines including epidemiology, social science, medicine, research, economics, consumer advocacy, law, ethics, health education, government, insurance, and media. Topics address the magnitude of the disease from issues faced jointly by patients, their families, and health care providers. Combines lectures by faculty and guests, and student presentations.

P8414 Cancer epidemiology, 3 points.

Prerequisite: *P6400*. Molecular and cellular biology of cancer and basic mechanisms of carcinogenesis. Role of chemical, viral, radiation, and genetic factors in human cancer. Sources of cancer patient data, with emphasis on acquisition and management of data for clinical and

epidemiologic research. Natural history of cancer with analysis of time trends in cancer incidence, mortality, survival, and geographic distribution. Role of environmental factors (ecological/industrial/occupational) in cancer causation. Fundamental issues in cancer screening and applications to public health and medical practice. Lectures and discussions. Assigned readings and term paper.

P8417 Selected problems of measurement in epidemiology, 3 points.
Prerequisites: *P6104* and *P6400*, or their equivalents. Introduction to measurement theory and the concepts of reliability and validity. Methods and development of assessing the quality of measurement in epidemiologic research. Special emphasis is placed on the consequences of measurement error for interpreting causal inferences concerning the effect of an exposure on a health outcome. Lecturers, discussions, homework assignments, and a final exam.

P8419 Neurobiology and genetics of psychiatric disorders, 3 points.
Taught by faculty in the Departments of Epidemiology and Psychiatry, with a focus on biologic and genetic factors in the development of psychiatric disorders. Provides an overview of the basic theories, concepts, and methods in neuroanatomy, neurochemistry, neuroimaging, and psychiatric genetics. While substantive findings are described, the emphasis is on methodological issues and the role of biological and genetic approaches in psychiatric epidemiology.

P8421 Introduction to clinical psychiatry for epidemiology and public health, 3 points.

For nonclinicians being trained in psychiatric epidemiology to familiarize them with the major psychiatric clinical entities, with DSM-III, and relevant issues concerning diagnosis. Special clinical topics are developed concerning childhood psychopathology and geriatric psychiatry.

P8422 Perinatal epidemiology, 3 points.
Prerequisite: *P6400*. A seminar on the events in the perinatal period both as outcomes of interest and as influences on child development. Topics to be covered include teratogenesis, reproductive loss, low birth weight, preterm delivery, and pre- and perinatal infections. Emphasis on issues of measurement and study design and the weighing of epidemiologic evidence.

P8432 Environmental epidemiology, 3 points.
Prerequisites: *P6104* and *P6400*. A selected research topic in environmental epidemiology is discussed in depth each week, along with pre-assigned readings. Special emphasis is given to study design, exposure assessment, outcome definition, and sources of bias. Discusses ongoing research at the Mailman School of Public Health and emphasizes environmentally induced diseases (including asthma and other respiratory effects, cancer, and neurologic impairment). A paper outlining an original study design on an environmental topic of interest is required. A final comprehensive exam is the other basis for course evaluation.

P8438 Epidemiology II: design and conduct of observational epidemiology, 3 points.

Prerequisites: *P6104* and *P6400*, or their equivalents. Aim is to provide students with the knowledge and skills necessary to design, carry out, and interpret observational epidemiologic studies of diseases. Topics include the development and operationalization of research hypotheses, design issues (cohort, case/control, cross-sectional, ecologic, etc.), basic analytic approaches, sampling, measurement, questionnaire design, and ethical issues in epidemiologic research. Lectures are accompanied by computer lab sessions, required readings, and weekly exercises. Evaluation is based on the exercises and a final exam.

P8440 Epidemiology of cardiovascular diseases, 3 points.

Prerequisite: *P6400* or the equivalent. An overview of current epidemiologic knowledge of cardiovascular disease (CVD), including coronary heart disease, stroke, and hypertension, with the aim of providing familiarity with the scope and magnitude of the CVD problem, a working knowledge of the major and minor risk factors for the various manifestations of CVD, and an appreciation for the methodologic problems encountered in cardiovascular epidemiologic research. Lectures, presentations by invited speakers, and student presentations.

P8442 Epidemiology and control of tuberculosis, 3 points.

Prerequisites: *P6104* and *P6400*. An in-depth look at the epidemiology and control of tuberculosis (TB). Students are lectured by specialists in the field of TB epidemiology, outbreak investigation, drug resistance, hospital-acquired infection, contact tracing, directly observed therapy (DOT), prevention, TB and HIV in the United States and abroad, BCG vaccination, treatment recommendations, as well as the ethical issues of coercion related to DOT and the politics and perspectives for the future. Students are expected to master the field of infectious disease epidemiology as it applies to TB. Course readings cover state-of-the-art and historical articles. Midterm exam and a final paper.

P8457 Epidemiology of asthma, 3 points.

Prerequisites: *P6400* and *P6104*. Introduction to biostatistical methods. Examines the global and local asthma epidemic, the methodologic issues it raises, what is known about various exposures as etiologic factors or as triggers for asthma attacks, and the problems of determining cause and effect in the setting of a condition that varies by time, place, and person. By the end of the course, students should have an appreciation of (1) the dimensions of the asthma epidemic; (2) how asthma is diagnosed, is treated, and changes over the life course; (3) what risk factors are considered important and the current state of research on these risk factors; and (4) the problems of, and available tools for, studying a life course disease.

P8465 Epidemiology of HIV and AIDS, 3 points.

A state-of-the-art review of the epidemiology of HIV infection and AIDS, with particular emphasis on the development of the epidemic in New York City. Lectures by leading experts in the field focus on the current status of infection in population groups and predictive models of future disease development. Additional topics include ongoing research on screening, surveillance, preventive education, and program evaluation. The student develops the ability to evaluate scientific publications and is prepared to participate actively in AIDS education or research at the applied level. The student is expected to demonstrate a thorough knowledge of HIV and AIDS by participation in class discussion and by exam.

P8469 Epidemiology of malaria, 3 points.

Examines the ecological and epidemiological characteristics of malaria, transmission dynamics, economic costs of malaria, available intervention strategies, and the global challenge of its control. By the end of the course, students should have an appreciation of (1) the extent of the malaria problem on health and socioeconomic development, (2) the diagnosis and treatment of malaria, (3) vector control and other preventive strategies, (4) current state of research on drug development and vaccines, and (5) the challenge of the Global Partnership for mobilizing resources for malaria. Format is a lecture by the instructor and guest lecturers, followed by discussion. Students have to hand in a twenty-five-page paper and a total of three outside-of-class group work assignments.

P8470 Epidemiology of alcohol and drug use disorders, 3 points.

Prerequisites: *P6400* and *P6104*. Intended to provide graduate students in public health with an introduction to and background in the area of

alcohol and drug epidemiology. The disorders of alcohol and drug abuse and dependence are studied, as well as use patterns of alcohol and drugs. Oriented to the use of alcohol, the use of drugs, alcohol use disorders, and drug use disorders as "outcomes variables." Coverage of methodological issues includes the main studies in each area and discussions of etiology and psychosocial and genetic factors. Short discussion of treatment. Weekly readings and lectures; a midterm and final cover the readings; final paper required, as well as a student presentation.

P8473 Design of infectious disease studies, 2 points. 9 weeks.

Presents the design and conduct of contemporary epidemiologic ID studies. Each week, resident faculty or a guest lecturer presents in detail a research project for a specific infectious disease, emphasizing background, design, findings, and inferences, followed by a class discussion. Students are required to select a research question, develop a written proposal for a study utilizing the standard NIH form 398 proposal format, and present the proposal in class. Evaluation is based on the written and oral presentation and on class participation.

P8475 Emerging infectious diseases, 3 points.

Prerequisites: *P6400* and some familiarity with molecular biology; *P8406* recommended. Examines the concept of emerging infectious diseases and our current understanding of emergence. Methods of identifying and studying emerging pathogens, factors responsible for disease emergence, and methods of surveillance and intervention are discussed. Examples of pathogens are considered. As problems closely related to the natural examples of emerging infectious diseases, public health aspects of biowarfare and bioterrorism are also discussed. By the end of the course, the student should understand what constitutes an emerging infection, appreciate why and how infections emerge, understand what approaches are currently available to track, predict, and respond to emerging infections, recognize the strengths and limitations of current capabilities for surveillance and control, and be able to identify similarities and differences between natural outbreaks of disease and biowarfare/bioterrorism. Lectures, presentations by invited speakers, and discussions. Midterm and final exam or paper.

P8480 Vaccines and public health, 3 points.

Prerequisites: *P6400*, *P6104*, and *P8406*. Provides a comprehensive historical, immunological, public health, and epidemiological overview of vaccines. Topics address major milestones in the history of vaccines: principles of vaccination, impact of vaccines on disease eradication, the design and interpretation of vaccine trials, posttrial surveillance, and new vaccines in development. Lessons are drawn from experiences with a variety of vaccines including smallpox, polio, measles, pertussis, influenza, rubella, rotavirus, pneumococcus, HIV, hepatitis B, HPV, lassa fever, and BCG. Completion of individual and group assignments as well as an independent literature review on the development of one specific vaccine and its public health impact is required.

P8482 Outcomes research: methods and public health implications, 3 points.

Designed to engage students in the understanding, analysis, and design of outcomes research. Focuses on the methodology of outcomes research and also addresses the public health implications of outcomes research. Includes four major topics: (1) The conceptual paradigms and the empirical evidence that gave rise to the outcomes research movement, (2) risk adjustment for measuring healthcare outcomes, (3) designing and evaluating quantitative subjective outcome measures, and (4) the public health implications of outcomes research.

P8488 Epidemiologic research topics in developing countries, 3 points.

Prerequisite: *P6400*. An introduction to the methodological, practical, and ethical considerations in the conduct of health research, specifically epidemiological studies, in developing countries. Designed for students who have already completed *P6400 Principles of epidemiology* and who have a familiarity with basic epidemiological methods. Each session examines a different study design with a facilitator experienced in implementing this type of study in a developing country. Facilitators' presentations and class discussions emphasize the practical aspects of planning and implementing studies in developing countries, including institutional relationships, ethical considerations, and relevance to public health policy and practice.

P8499 Field methods in epidemiology, 3 points.

Prerequisite: *P8438*; *P8115 Sample survey theory* recommended.

A major objective of this course is to prepare researchers to conduct epidemiological field studies that yield valid and reliable results. Both theory and practice are emphasized by hands-on experience in order to foster a better understanding of and appreciation for fine points of survey methodology. Designed to familiarize the student with techniques and resources required to successfully design and carry out the field portion of an epidemiological investigation, including staff recruitment and training, counting and listing techniques, enumeration methodologies, subject recruitment, retention and tracking, data storage and management, and general survey instrument issues. It should be emphasized that this is not a specialized course in sampling theory and technique, and students are advised to become familiar with this material prior to taking or while enrolled in this course. Other course topics include a general overview of sampling methods and a review of and practice using survey-related software such as U.S. Census Tiger Files, Epi Info-Epi Map, Arc View GIS, CS Pro, etc. Issues of ethics, confidentiality, requirements for incident reporting, and features unique to conducting surveys in less-developed countries are discussed.

P9400 Case studies in causal thinking for epidemiologists, 4 points.

Prerequisites: *P9485* and two substantive courses in epidemiology.

Intensive case studies involving the application of epidemiologic principles, with special emphasis on causal inference and judgments. All students prepare a succinct review of the case for each class. The case is placed in context by the instructor, is presented by at least two students, and is discussed by the class.

P9407 Methods in molecular/genetic epidemiology, 3 points.

Prerequisites: *P8400* and *P8120 Analysis of categorical data*. Designed for students who want to pursue doctoral study/careers in the area of molecular/genetic epidemiology. Focus is on the methodological issues pertaining to epidemiologic research involving genetic and/or nongenetic biological markers. The goal is to train students on both the theoretical and relevant practical aspects of the design, conduct, and analysis of molecular/genetic epidemiologic research studies.

P9408 Epidemiology of infectious diseases II, 3 points.

Prerequisites: *P6400* and *P8406*. For students who have already taken *P8406 Epidemiology of communicable diseases I* and who are presently conducting or are planning to conduct an epidemiologic study in communicable disease. Objectives are to understand transmission dynamics, to apply concepts of molecular epidemiology to communicable diseases, and to understand approaches to ecological study design and intervention evaluation. The grade is based on preparation of a research protocol or manuscript for publication.

P9419 **Master's thesis in epidemiology I**, 1 point.

A master's thesis is required for both the M.P.H. and the M.S. degrees with a concentration in epidemiology. The thesis may represent empirical research, a fresh analysis of existing data, or a theoretical treatise. The student first registers for a one-semester, 1-point course (*Master's thesis in epidemiology I*) to develop a proposal in consultation with a faculty supervisor. This proposal is submitted to the Master's Programs Committee for approval.

P9420 **Master's thesis in epidemiology II**, 2 points.

Prerequisite: P9419. After the successful completion of P9419 *Master's thesis in epidemiology I*, students must register for P9420 *Master's thesis in epidemiology II*, which provides them with the tools to develop their master's thesis step-by-step from introduction to references. In addition, the course helps students to integrate epidemiological and statistical concepts by answering research questions.

P9446 **Faculty-fellow seminar in psychiatric epidemiology**, 1 point.

Primarily for fellows in the Psychiatric Epidemiology Training Program. Presentation and discussion of ongoing faculty and fellow research, plus guest speakers. Designed to provide constructive criticism of research in progress and to make fellows aware of current issues in psychiatric epidemiology.

P9480 **Research seminars in epidemiology**, 0.5 point each term.

Primarily for students with a concentration in epidemiology. Others welcome. Presentations on completed and ongoing research by faculty, invited speakers, and postdoctoral and predoctoral students. Exchanges on study design, data collection, and analysis and interpretation.

P9485 **Advanced topics in epidemiologic methods**, 3 points.

Prerequisites: P8120 and P8438. Designed specifically for advanced epidemiology students, this course reviews selected classic and recent articles on epidemiologic methods. Structured as a reading seminar with a series of articles assigned each week focusing on a specific methodological topic that has given rise to substantial consideration and debate in the literature. Format is a one-hour lecture that provides an introduction to each topic. Students then divide into smaller discussion groups, each led by a facilitator.

P6490, P8490, and P9490 **Tutorials in epidemiology**, 1 to 6 points.

Tailored to the particular interests and needs of the individual student. May include literature review, research projects, field trips, or other special studies that enrich the student's program.

P9493 **Topics in epidemiology of neurological disorders**, 3 points.

Prerequisites: P6104 and P6400. Epidemiology of selected neurological disorders, including stroke, epilepsy, multiple sclerosis, motor neuron disease, myasthenia gravis, muscular dystrophy, primary brain tumor, Parkinson syndrome, dementia, and presumptive slow virus diseases. Paper and exam.

Also:

Offered through the Department of Environmental Health Sciences:

P8301 **Gene-environment interactions in human disease**

P8307 **Molecular epidemiology**

Offered through the Heilbrunn Department of Population and Family Health:

P8679 **Investigative methods in humanitarian emergencies**

Offered through the Department of Sociomedical Sciences:

P6781 **The use of large-scale national health care data sets**

P8725 **Global AIDS policy**

P8740 **History of epidemiology**

GENERAL PUBLIC HEALTH

Degree offered:

M.P.H. 56

Program in General Public Health

600 West 168th Street, 6th Floor

New York, NY 10032

212-305-3924

Web Site: <http://www.mailman.hs.columbia.edu/hpm/gph.html>

Program Director: Jeanne M. Stellman, Ph.D.

Learning Objectives

The program is intended to prepare physicians and other professionals with prior health experience for new or expanded roles that affect public health care by providing them with the knowledge and skills necessary to follow their chosen career paths. General Public Health (GPH) is a schoolwide program for M.P.H. degree candidates with previous professional health training and at least two years of public health-related work experience. General Public Health candidates are most often physicians, dentists, nurses, scientists, lawyers, and other professionals. GPH students have clearly defined career goals that are most appropriately met by an interdisciplinary training program in methods and issues addressed by several of the School's departments.

Graduates of the program work to improve public health in a variety of settings, including community health centers, research and academic institutions, health departments, hospitals, private voluntary organizations, international organizations, and private practices.

Academic Program

MASTER OF PUBLIC HEALTH (M.P.H.)

The GPH program's emphasis on interdisciplinary training often means that students will take courses in other schools in Columbia University in order to fulfill their degree requirements. Students in the General Public Health program must fulfill the School core requirements in biostatistics, epidemiology, environmental health sciences, health policy and management, and sociomedical sciences. GPH students work with a faculty advisor to design an individualized course of study that meets each candidate's particular interests and needs. Thirty points of instruction are required beyond the 15 points of core course requirements.

Students enrolled in M.D., D.D.S., and graduate nursing, occupational therapy, and physical therapy programs, as well as individuals applying to residency programs in preventive medicine, who are interested in careers in public health can apply for the M.P.H. degree through the Program in General Public Health.

A practicum, designed to provide opportunities to test and apply the academic training received in the program to the student's actual or planned work setting, is required. The practicum is individually selected and tailored to meet the needs of each student and may take a variety of forms. An individual who already has significant administrative, programmatic, or research experience or independent studies may need to fulfill only the prescribed written and oral presentation requirements that are specified for the program's culminating experience. There is no thesis requirement in the program.

The program may be pursued on a part-time, full-time, or accelerated basis. With careful planning, it can be completed in one year. Students may start this program any semester, fall, spring, or summer. However, they should be aware of the fact that some courses will have prerequisites, and most departments in the school limit their admissions to the fall term. Course sequencing is often based on this premise.

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6000 Perspectives in the history and philosophy of public health, 3 points.

People, ideas, and institutions in the development of health care in various civilizations. Topics include concepts of disease and medicine in history; population and poverty; the founding of hospitals and asylums; industrialization, cities, and the sanitation movement; the rise of scientific medicine; state intervention in public health; social Darwinism, eugenics, and ideology; the birth control movement; the emergence of national health care systems; technology, environment, and values.

P6001 Perspectives in the history and philosophy of public health in the United States, 3 points.

People, ideas, and institutions in the development of American health care. Topics include disease and social philosophy in early America; industrialization, medicine, and Jacksonian democracy; the sanitation movement, scientific medicine, and social Darwinism; race and eugenics; public health in the Progressive Era; immigration, poverty, and the birth control movement; the struggle for a national health system; the environmental idea; health and feminism; the concern for rights; values in biomedicine.

P6010 Educational interventions in the health care system, 2 points.

The concept of health education in varied settings, such as the hospital, community, school, and family. Role-playing simulation exercises introduce particular situations to assist in identifying points of educational intervention and to stimulate discussion of educational needs, potentials, and approaches. In-depth study of selected educational strategies.

P6011 Public health law, 2 points.

An exploration of the legal aspects of public health enforcement and administration in a manner useful to the public health officer or other public health personnel. Lectures, seminars, and reports.

P8013 Health education: training techniques and approaches, 3 points. Training activities for health organization and group development. The term begins by faculty members engaging students in training exercises and moves toward students conducting the training. Enables students to identify principles underlying training for group and organization development; develop and adapt basic training techniques to health education settings; and conduct training exercises and utilize effective training approaches. Exercises, group work, lectures, audiovisual materials.

P8035 Ethical conflicts in human subjects research, 2 to 3 points.

Emphasizes that true ethical dilemmas occur when two or more basic principles collide, e.g., the right to privacy vs. protection of the public's health. Human subject research presents its own set of conflicts. On what basis and in what forum should these conflicts be resolved? Focus on the application of basic principles to actual research being done or proposed to be done in New York City. Current case studies are used for discussion. Final grade based on 2 four- to seven-page papers and participation in classroom discussion.

P6090, P8090, P9090 Tutorials in general public health, 1 to 6 points.

Tailored to the particular interests and needs of individual students, the tutorials take many forms—literature reviews, research projects, field trips, and other special studies or learning experiences. Their objective is to enrich the student's program. General public health subject areas for tutorials might include dental public health, health education, international health, nutrition, drug abuse, and other topical concerns not specifically dealt with in formal courses or in departmental or other study programs.

P8093 Tutorial in social medicine, 2 points.

Public health students are invited to participate in the social medicine curriculum offered each Tuesday evening to the residents in family medicine and primary care of Montefiore Medical Center. The tutorial includes a series of six-week minicourses on complementary and alternative therapies, human sexuality, health in Latin America, gay and lesbian health issues, the health issues of blacks in the United States, advocacy and organizing, and racism and health. For public health students, a written "think piece" is required.

P6094, P8094 Tutorials in dental health, 1 to 6 points.

Individually arranged projects concerning dental care and public health.

HEALTH POLICY AND MANAGEMENT

Degrees offered:

M.P.H., Health Care Management 61	M.P.H., Columbia On The Job (COTJ) 62
M.P.H., Health Care Policy 61	M.P.H., Executive Format 62
M.P.H., Effectiveness and Out- comes Research (EOR) . . 62	

Department of Health Policy and Management

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Program Director: Susan Cohen

Faculty

DEPARTMENT CHAIR

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B.A., Yale, 1982; M.A., Toronto, 1985; Ph.D., Harvard, 1990

PROFESSORS

Lawrence D. Brown, *Professor of Health Policy and Management*
B.A., Harvard, 1969; Ph.D., 1973

Samuel Davis, *Clinical Professor of Health Policy and Management*
B.A., City College (New York), 1952; M.S., Columbia, 1957

Thomas P. Ference, *Clinical Professor of Health Policy and Management*
B.S., Carnegie Mellon, 1963; M.S., 1966; Ph.D., 1967

Kathleen Gaffney, *Clinical Professor of Health Policy and Management*
B.A., Cornell, 1965; M.D., 1969; M.P.H., Harvard, 1971

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B.A., SUNY (Stony Brook), 1970; M.S.S., Hebrew (Israel), 1972; Ph.D., Minnesota, 1982

Victor R. Grann, *Clinical Professor of Medicine, Epidemiology, and Health Policy and Management*
A.B., Yale, 1955; M.D., New York Medical, 1962; M.P.H., Columbia, 1997

Roz Lasker, *Clinical Professor of Health Policy and Management*
A.B., Cornell, 1970; M.D., Pittsburgh, 1976

Donald Light, *Visiting Professor*
B.A., Stanford, 1963; M.A., Chicago, 1966; Ph.D., Brandeis, 1970

Jeffrey D. Sachs, *Professor of Health Policy and Management*
(also Quetelet Professor of Sustainable Development) B.A., Harvard, 1976; M.A., 1978; Ph.D., 1980

Jeanne M. Stellman (Deputy Chair), *Professor of Clinical Health Policy and Management*
B.S., City College (New York), 1968; Ph.D., City University (New York), 1972

ASSOCIATE PROFESSORS

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B.A., New York University, 1980; D.D.S., 1984; M.P.H., Columbia, 1987

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B.A., Harvard, 1982; M.D., Cornell, 1986; M.P.H., Johns Hopkins, 1991

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B.A., Syracuse, 1959; Ph.D., 1965; M.P.H., Harvard, 1980

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L.L.B., Leyden, 1980; L.L.M., 1983; Ph.D., Amsterdam, 1991

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(also Medicine) (in Surgery) B.A., Vermont, 1974; M.D., New York Medical, 1978

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B.A., St. John's, 1972; M.P.A., City University (New York), 1977; M.Ed., Teachers College, 1988; Ed.D., 1991

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Michael S. Sparer, *Associate Professor of Health Policy and Management*
B.A., Beloit, 1977; J.D., Rutgers, 1980; Ph.D., Brandeis, 1992

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M.D., Shanxi Medical (China), 1985

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ASSISTANT PROFESSORS

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B.A., Texas (Austin), 1987; M.B.A., 1989; Ph.D., California (Berkeley), 2001

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B.A., Amherst, 1992; M.S., Northwestern, 1997; Ph.D., 1999

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B.A., Michigan (Ann Arbor), 1971; M.S.W., 1974; Dr.P.H., Columbia, 1990

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M.A., Pontifical Faculty of St. Thomas Aquinas, 1958; M.A., Aquinas Institute of Theology, 1962

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B.A., North Carolina (Chapel Hill), 1975; M.P.H., South Carolina (Columbia), 1980; Ph.D., Duke, 1996

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Joshua Graff Zivin, *Assistant Professor of Health Policy and Management*

B.A., Rutgers, 1993; M.S., California (Berkeley), 1994; Ph.D., 1998

ADJUNCT PROFESSORS

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(in Psychiatry) B.A., Holy Cross, 1952; L.L.B., Harvard, 1955

Mathilde Krim

(in Pediatrics) B.S., Geneva, 1948; Ph.D., 1953

Jane E. Sisk

B.A., Brown, 1963; M.A., George Washington, 1965; Ph.D., McGill (Canada), 1976

ADJUNCT ASSOCIATE PROFESSORS

Harold Fruchtbaum (*History and Philosophy of Public Health*)

B.C.E., New York University, 1955; M.S., Rensselaer Polytechnic Institute, 1956; Ph.D., Harvard, 1964; M.A., Cambridge, 1968

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B.A., Colgate, 1961; M.D., New York University, 1965; M.P.H., Yale, 1971

Lawrence Wolper

B.A., Hofstra, 1968; M.B.A., Baruch (New York), 1973

ADJUNCT ASSISTANT PROFESSORS

Donald L. Ashkenase

B.S., Brooklyn, 1965; M.B.A., Wagner, 1974

John E. Baer

B.A., Oberlin, 1959; M.S., Columbia, 1961; D.P.A., New York University, 1967

Merle C. Cunningham

B.A., Rochester, 1967; M.P.H., Columbia, 1976; M.D., Rochester, 1977

Henry R. Karpe

B.B.A., City College (New York), 1952; M.S., Wisconsin, 1972

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B.A., Princeton, 1980; M.D., Columbia, 1984; M.P.H., 1988

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B.A., Queens College, 1972; M.P.H., Columbia, 1980; Dr.P.H., 1988

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B.A., SUNY (Syracuse), 1963; M.A., Boston, 1967

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B.A., SUNY (Albany), 1972; J.D., SUNY (Buffalo), 1976; M.P.H., Columbia, 1978

SPECIAL LECTURERS

Joan M. Leiman, *Ph.D.*

Stephen N. Rosenberg, *M.D. (Emeritus)*

SENIOR LECTURERS

Jon R. Cohen, *M.D.*

Ellise S. Delphin, *M.D.*

Thomas J. Foley, *M.S.*

John Kastan, *Ph.D.*

David G. Pockell, *M.S.*

Frederick Putney, *Ph.D.*

LECTURERS

Frederick D. Alley, *M.S.*

Richard Anderson, *Ph.D.*

Anthony Bale, *Ph.D.*

Michael Birnbaum, *M.Sc.*

Matthew Borsch, *M.B.A., M.P.H.*

Nicholas Freudenberg, *Dr.P.H.*

Gary Gambuti, *M.P.H.*

Michael Guzman, *Ph.D.*

Katherine E. Garrett, *M.B.A.*

James T. Harden, *M.B.A., M.P.H.*

Stan W. Kachnowski, *M.A.*

David E. Leach III, *J.D.*

Arthur A. Levin, *M.P.H.*

Robin A. Maley, *M.P.H.*

Andrea Ptaszek, *Ph.D.*

Annette Ramirez De Arellano, *Dr.P.H.*

Norman D. Schwartzben, *M.S.*

Itzhak Sharav, *Ph.D.*

Alvin Strelnick, *M.D.*

Roger E. Wanerman, *J.D.*

ASSOCIATES

Susan Browning, *M.P.H.*

Hilda Polanco, *B.S.*

Robert Spinelli, *M.P.H.*

Linda Tauber, *M.B.A.*

tioners who are recognized experts in their fields. These practitioners are especially adept at relating the realities of the workplace to classroom theory. In addition to being excellent and accessible teachers, they provide a valuable resource to students by offering opportunities for research projects, tutorials, part-time internships, or practica.

Learning Objectives

The mission of the Department of Health Policy and Management is to advance theory and practice that improve the public's health, prevent disease, and strengthen the health care system and its component organizations. Our mission is fulfilled through research, education, and service that address the development and implementation of health policy and the effective management of health care organizations, systems, and services. We believe that health policy and health care management are interdependent, and our research and education programs are informed by this view. We approach health policy and management issues, including organization, access, delivery, quality, and financing, from a range of disciplinary and professional perspectives, in historical and social context, and with full regard for empirical evidence. The primary research goal of the department is to assist in the effort to reform and more effectively manage the health care system.

Overview

Since its beginning over seventy-five years ago, the Mailman School of Public Health has been on the cutting edge of public health education. It is one of the oldest accredited schools of public health and the first to offer a master's degree in hospital administration. This program has evolved into the Department of Health Policy and Management and continues to earn a reputation of excellence for graduating individuals who have become leaders in the different spheres of the health care arena, both in the United States and abroad.

Because the department is based in a school of public health, students are taught the fundamentals of public health philosophy and practice as well as the analytical skills and methodological tools necessary for both health policy makers and managers. All students grow, both intellectually and personally, by learning and thinking broadly.

Choosing a graduate program is about discovering what makes the program outstanding and determining whether there is a good fit with your needs. The Department of Health Policy and Management prepares students for positions of leadership in health care policy and management by giving them the knowledge and skills necessary to address fundamental issues in today's complex and rapidly changing health care environment. Graduates can choose jobs in the public, nonprofit, and for-profit sectors of the health care system.

The Department of Health Policy and Management's faculty include full-time University-based researchers and part-time adjunct practi-

Academic Programs

The Department of Health Policy and Management (HPM) offers three M.P.H. programs: (1) a full-time program in which students choose from one of three concentrations or tracks: Health Care Management, Health Care Policy, and Effectiveness and Outcomes Research (EOR); (2) a part-time evening program, referred to as Columbia On The Job (COTJ); and (3) an executive program. In all cases, the M.P.H. is a 45-point program that includes core courses, departmental requirements, and elective courses.

FULL-TIME MASTER OF PUBLIC HEALTH (M.P.H.)

The full-time program requires attendance for three terms and a summer practicum. The format is generally for students with little or no relevant work experience. Full-time students select one of three tracks: Health Care Management, Health Care Policy, or Effectiveness and Outcomes Research. There are different course requirements for each of these tracks. Enrollment in the EOR track is limited to ten students annually.

Students enter in September and generally complete the program in one and a half years. There are special one-year programs designed for dual degree students in dentistry and medicine, as well as for students in selected residency, fellowships, and other programs.

All full-time HPM students take biostatistics, epidemiology, environ-

mental sciences, issues and approaches in health policy and management, health economics, research methods, health policy and the political system, practicum seminar, and electives from any school or department at Columbia University. Many students take courses at the Columbia Schools of Business, Law, and International and Public Affairs.

The special departmental track in Effectiveness and Outcomes Research (EOR) combines the resources of our department with methodological training in biostatistics and epidemiology. Students learn to assess the effectiveness of health care interventions, especially for their effects on health outcomes. The EOR focus on cost implications of alternative strategies has assumed increasing importance for health care policy makers and managers.

The Practicum

The practicum program is a highlight of the academic program in health policy and management. Full-time students in all concentrations complete a summer practicum before their final fall semester. The practicum experience provides students with the opportunity to integrate and apply knowledge gained in the classroom and to obtain the practical skills necessary for policy, management, and research positions.

During the summer months, students work under the supervision of a preceptor in administrative, research, or program activities. The practicum is usually paid, individually selected, and tailored to meet the needs and interests of each student. Examples of recent summer practicum placements include Englewood Hospital, New York City Department of Health, General Accounting Office, Agency for Health Care Research and Quality, Merck Medco, NewYork-Presbyterian Hospital, March of Dimes, Johns Hopkins Hospital, New York City Health and Hospitals Corporation, American Cancer Society, and New York Business Group on Health. Many of the students continued to work part time at the New York placements during their final fall semester.

The practicum enables students to clarify their career goals and often leads to permanent health policy and management positions upon graduation. The experience culminates in a fall seminar that involves the students, entire faculty, and HPM alumni. The seminar provides presentation skills training and integrates the academic and experiential components of the master's program.

Advising

Realizing that graduate professional education is a major transition for many students, the department has established an advisory system that provides a supportive environment and encourages the success of all students. In addition to the students' faculty advisors, two academic advisors work closely with all students and are available full time for advising on issues related to academic program planning and practicum placement. The department recently initiated a writing proficiency program to evaluate and improve students' writing skills for current academic studies and future professional employment.

M.P.H., Health Policy and Management All Tracks, 45 Points*

Core Course Requirements	Points
<i>Rule: Complete all (see page 20)</i>	
<i>Complete one as a substitute for P6700 to meet Core Requirements</i>	
P6503 Introduction to Health Economics	3
P6508 Health Policy and the Political System	3
P8511 Health Care Policy: Lessons from the States	3
P8537 The Political Economy of Health Care	3
Department Requirements	
<i>Rule: Complete all</i>	
P6503 Introduction to Health Economics	3
P6508 Health Policy and the Political System	3
P8502 Research Methods for Health Policy and Management	3
P8581 Practicum Seminar in Health Policy and Management	0 or 1

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

M.P.H., Health Care Management Track*

Track Requirements	Points
<i>Rule: Complete all</i>	
P6529 Accounting and Budgeting for Health Administration	3
P8517 Managing Complex Organizations	3
P8533 Health Care Financial Management	3
P8557 Managerial and Organizational Behavior	3
P8558 Strategic Management	3

Elective Courses

Rule: Complete 9 points of graduate-level electives; at least 2 points must be in HPM

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

M.P.H., Health Care Policy Track*

Track Requirements	Points
<i>Rule: Complete all</i>	
P8541 Cost-Benefit Analysis in Health	3
P8531 Seminar in Health Policy and Analysis	3
<i>Rule: Complete one from each pair</i>	
P6514 Legal Aspects of Health Care Policy and Administration	3
or	
P8520 Health Care Ethics: Development and Management of Public Policy	2

P8511 Health Care Policy: Lessons from the States or any health policy elective	3 3
P8517 Managing Complex Organizations or P8558 Strategic Management	3 3
P8575 Cross-National Health Policy or any health policy elective	3 2-3

Elective Requirement

Rule: Complete 5-7 points with any graduate-level electives

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department student handbook at the time they begin their program of study.

M.P.H., Effectiveness and Outcomes Research Track*

Track Requirements	Points
Rule: Complete all	
P6781 Use of Large-Scale National Health Care Data Sets	3
P8100 Applied Regression Analysis	3
P8541 Cost-Benefit Analysis in Health	3
P8564 Health-Related Issues in Quality of Life across the Adult Life Course	3
any health policy elective	2-3

Rule: Complete two graduate-level methodological electives with the approval of EOR advisor

Rule: Complete 2-4 points with any graduate-level electives

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department student handbook at the time they begin their program of study.

PART-TIME M.P.H.—COLUMBIA ON THE JOB (COTJ)

The part-time evening program requires attendance for 28 months, including five semesters and summer courses. This structured format, referred to as Columbia On The Job (COTJ), is generally for employed students with at least one year of relevant work experience. Much of the educational program is problem based, using case studies and problem-solving exercises to enhance student participation and encourage the exchange of ideas and insights. Students are exposed to concepts and practices of group processes to enhance peer interactions and to encourage the development of colleague support networks. COTJ students do not have a concentration; their course of study includes the basics of management, policy, and effectiveness and outcomes research.

During the fall and spring semesters, students attend class two evenings a week and on an occasional weekend. During each of the two summer sessions, there is a two-week Summer Institute that meets from 9 to 5, Monday to Friday. Each Institute offers two 3-point courses. The schedule for each 3-point course provides a minimum of 36 faculty-student contact hours, plus 3 hours for scheduled group

activities (project time) and 3 hours for exams and project presentations. Students are encouraged to take an elective each summer.

Part-time M.P.H., Columbia On The Job, 45 Points*

Year 1	Points
Fall	
P6103 Introduction to Biostatistics	3
Spring	
P6530 Issues and Approaches in Health Policy and Management	3
P6529 Accounting and Budgeting for Health Administration	3
Summer	
P8534 Information Management	3
P8557 Managerial and Organizational Behavior	3
Year 2	
Fall	
P6300 Environment Health Sciences	3
P6400 Principles of Epidemiology I	3
Spring	
P8533 Health Care Financial Management	3
P6503 Introduction to Health Economics	3
Summer	
P8502 Research Methods for Health Policy and Management	3
P8541 Cost-Benefit Analysis in Health	3
Year 3	
Fall	
P6508 Health Policy and the Political System	3
or	
P8546 Government's Roles in the U.S. Health Insurance System	3
P8558 Strategic Management	3
or	
P8517 Complex Health Care Organization and Its Management	3

Elective Requirement

Rule: Complete Summer Session Elective for 3 points in Years 1 and 2

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

EXECUTIVE M.P.H.

The Executive M.P.H. program requires 24 consecutive monthly extended weekends. This format is for students with several years of relevant work experience. The program fosters the development of the managerial skills necessary for professional leadership in the public, nonprofit, and for-profit sectors of the health care system. The structured curriculum bridges the gap between the academic setting and the world of health care practice with many of the courses utilizing a case study approach. This program is designed for experienced professionals who wish to remain employed while

studying for the Master of Public Health degree in health services management. When classes are not in session, students communicate with each other, the program staff, and faculty via e-mail. Students should refer to the brochure entitled "The Executive Master of Public Health in Health Services Management" for additional information about the program.

Unless otherwise noted, all Executive M.P.H. students will complete the generic curriculum below.

Executive M.P.H.*

Year 1

P6103 Introduction to Biostatistics

P6503 Introduction to Health Economics

P6517 Legal Aspects of Health Services Administration

P6529 Accounting and Budgeting for Health Administration

P6530 Issues and Approaches in Health Policy and Management

P6532 Human Resources Management in Health Care Institutions

P6560 Organization Theory

P8534 Information Management

Year 2

P6300 Environmental Health Sciences

P6400 Principles of Epidemiology

P6508 Health Policy and the Political System

P8563 Managed Care and Quality: The Promise and the Reality

P8533 Health Care Financial Management

P8558 Strategic Management

P8565 Health Care Quality Management

P8018 Capstone Seminar

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department student handbook at the time they begin their program of study.

Student Life

Each entering class has between forty and fifty students, and all full-time HPM students get to know each other well because they take their core departmental courses (*Economics, Health policy and the political system, and Research methods*) together. Classes are significantly smaller for required track courses, including *Accounting and budgeting* and *Health care finance* in the Management track and *Cost-benefit analysis* and *Lessons from the states* in the Policy track. Elective courses, such as *Health law, Collective bargaining, and Cross-national health policy*, are also smaller and tend to be taught in a seminar format.

Volunteering: Our department encourages faculty and student participation in service initiatives with health care providers and with private or public health institutions and agencies. Although students are busy with academic work, many find the time to participate in voluntary school and community activities.

ACHE: The Department of Health Policy and Management houses the student chapter of American College of Healthcare Executives (ACHE). ACHE student members are active in organizing and facilitating educational seminars, career workshops, and alumni panels for students interested in networking with and learning from health care management professionals.

Brown Bag Seminars: The Department of Health Policy and Management hosts a series of lunchtime talks by experts in the field of health care. Guest lecturers are invited from within and outside of the University, and participants include students, faculty, and staff from all departments in the School.

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6503 Introduction to health economics, 3 points.

Economic analysis offers an analytic approach to problem solving that is particularly useful in thinking about the financing and delivery of health services. The course covers relevant aspects of microeconomic theory and their application to health care issues. Students are evaluated on the basis of homework assignments, a midterm, and a final exam.

P6508 Health policy and the political system, 3 points.

Analysis of the role of major institutions—the central government, the federal system, the private sector, interest groups—in formulating and implementing health policy in the United States. Discussion of underlying normative issues, cross-national perspectives, and the ups and downs of health care reform. Lectures and discussion. Midterm and final exams required.

P6513 Hospital organization and management, 3 points.

Administrative elements of hospital functions, including background and theoretical concepts, and opportunities for examination and open discussion of the issues and problems of hospital management. The approach is from the general to the particular, to provide students with a workable overall knowledge of hospital organization as well as more particular insight into certain typical and key departments.

P6514 Legal aspects of health care policy and administration, 3 points.

Provides students with the legal framework governing health care policy and administration. Students analyze federal and state statutes and regulations as well as case law relevant to health care administrators, providers, and consumers. Students are exposed to the evolution of laws shaping health care policy and have the opportunity to examine the legal issues that will affect health care providers and consumers in the 21st century. At the end of the course, the students should understand the legal principles governing health care administrators; be able to recognize legal problems and their management and (1) refer to and interpret the governing laws, policies, and ethical considerations under which they will be expected to operate or (2) recognize issues that warrant seeking legal and other appropriate counsel; be able to assist those with whom they work to develop policies and procedures that are consistent with legal and ethical obligations and principles; and have a better understanding of the interrelationship between law, health care delivery, policy, and ethics.

P6517 Legal aspects of health services administration, 2 points.

Legal responsibilities and liabilities in relation to consumers and providers of health services. Topics include licensure, malpractice, negligence, and death.

P6518 Health care facilities planning, 3 points.

No prerequisite, but *P6503*, *P6513*, *P6525*, and *P6529* are desirable.

Policy, politics, demographics, economics, organization, management, and operations merge in the programming, planning, design, financing, and construction or renovation of health facilities. Management tools, strategy, concepts, terminology, standards, and techniques are outlined in theory and case study.

P6529 Accounting and budgeting for health administration, 3 points.

Financial statements enable us to evaluate the performance of an enterprise, analyze its cash flow, and assess its financial position. Budgets, based on forecasts, take the form of projected financial statements and serve as an important managerial tool for planning and control purposes. The course examines the generally accepted accounting principles (GAAP) underlying the statements and their implementation in practice. It also notes the limitations of financial reports and their evolution in response to changing business conditions. Attention is paid to the special and occasionally different use and implementation of GAAP by not-for-profit organizations in general and providers of health care services in particular. Midterm and final exams.

P6530 Issues and approaches in health policy and management, 3 points.

Satisfies the Health Policy and Management core requirement for the M.P.H. degree. Lectures, team projects, and readings on administrative problems and interventions that affect, and are affected by, all public health practitioners, as they seek to improve health care delivery, health care, and the health status of populations. Taught in both Executive and traditional formats. Individual papers required.

P6532 Human resources management in health care institutions, 3 points.

Familiarizes the student with the field of human resource management through an examination of the major components of labor law, collective bargaining, and labor relations. The course demonstrates the need to plan and direct the relationship of labor and management in order to develop and utilize an effective work setting; provides the student with an understanding of the dynamics of labor relations and the environment in which the legal structure operates; identifies the problems resulting from the efforts of government to define the rights, duties, and obligations of labor relations and collective bargaining; and explores the evolution and current problems of collective bargaining, emphasizing the major trends of the law, the reason for these trends, and their consequences on the overall function of labor relations in the health care field.

P6560 Organization theory, 3 points.

Classical, contemporary, and new concepts of organization and management theory. Theoretical and empirical aspects of organizational structure, culture, work process and function, and behavior of persons who work in organizations are examined. A congruence model of organization is used as the basis for understanding and analyzing organizational change. Analytical skills are developed using the case method, to enable students to apply theoretical concepts to real-life management in health care.

P8500 Health care delivery systems: safety and efficacy of medical technologies, 2 points.

Prerequisite: completion of M.P.H. core courses. A conceptual framework for medical technology assessment is presented; technologies needing assessment are identified; and types of information needed and mechanisms for testing are reviewed, including health, economic, and social effects. Case studies of safety and efficacy are presented and evaluated,

as well as current activities in this field by both the public and private sectors. Shortcomings of the present system, as well as policy alternatives, are reviewed. Several sessions are devoted to the safety and efficacy of prescription and nonprescription drugs in the context of the United States and world pharmaceutical scenes; the costs and financing of drug-related services are reviewed in detail. Seminar format.

P8501 Comparative health systems, 3 points.

Prerequisite: *P6530*. In-depth discussion of the health care systems of several countries, both developed and developing, including the United States, Canada, Great Britain, China, Cuba, Sweden, and South Africa, as examples. Consideration is also given to health issues of international importance, such as hunger and famine, U.S. and Western donor health policies and the Third World, and the health effects of structural adjustment programs. Seminar and group discussion format.

P8502 Research methods for health policy and management, 3 points.

Prerequisites: *P6103* or *P6104* and a working knowledge of a spreadsheet computer program (e.g., Excel or Lotus 1-2-3) or a statistical software package. Fundamental principles of research methods are applied to problems in health policy and management. Through analysis of research reports and manipulation of data sets, students learn elements of research design and how to apply statistical analyses using statistical software. Successful completion of the course should enable the student to apply critical analysis to the relevant literature. Students work individually or in groups on assigned projects. Each individual/group writes a research report on at least one data set. Midterm and final exams on basic methodological approaches.

P8505 Managed care, 3 points.

Prerequisite: *P6530*. Managed care under current pluralistic systems of health care and insurance, the organizational forms managed care may take, and its potential as a health care delivery system. Existing prototype managed care programs examined. Lectures, seminars, and readings. Paper required.

P8510 Assessment of health care, 3 points.

Prerequisite: *P6530* or the equivalent. Provides a general introduction to and overview of the measurement of quality in all parts of the health care delivery system, from primary care to acute and long-term care, behavioral health care, and chronic disease. Includes seminar discussions, team exercises, actual hands-on experience in developing appropriate measures of performance, and presentations by project teams.

P8511 Health care policy: lessons from the states, 3 points.

Designed (1) to analyze the relationship between American Federalism and health care policy, from the 18th century to the present; (2) to examine the efforts of several states to adopt innovative health reform programs; and (3) to consider the role states should play in a reformed health care system. As part of this inquiry, the class examines Medicaid managed care initiatives, long-term care policy, medical workforce policy, welfare, and insurance reform initiatives. Midterm and final exams; students may write a research paper as a substitute for the midterm.

P8513 Health care marketing, 3 points.

Marketing is now a key growth driver for all health care sectors. Course covers marketing strategy for all players, from hospitals to physician practices and pharmaceutical firms. Students learn to analyze and segment the consumer and professional markets, to develop and position a product/service portfolio, and to create a marketing plan including use of new media such as the Internet. An interactive, multimedia approach, including current managerial readings, cases, and videos sourced globally, with senior health care executives as guest speakers. Students customize the course to their needs through a consulting project for an actual health care organization (in lieu of a final exam). Assignments include a short midterm exam and an oral case presentation.

P8514 Health care e-commerce, 3 points.

E-commerce solutions are used by many health care organizations as a method of maintaining competitive product and service lines. Fundamentals of understanding how the Internet is changing health care research, development, and operations around the world provide a basis for evaluating and managing e-commerce solutions for long-established entrepreneurial efforts or newly developing ventures.

P8516 Issues in health care policy and health care reform, 2 points.

Introduces students to the analysis of issues in health policy through an in-depth examination of several of the major issues related to health care reform and the functioning of the health care system. The first part examines competing views of how a health care system should work. The second part traces issues in the reform of the U.S. health care system. While the principal focus is on the U.S. health care system, we also study the relevance of these ideas to other types of health care systems.

P8517 Managing complex organizations, 3 points.

Prerequisites: *P6513* and core courses. Coordination, at a more advanced level, of the learned concepts of complex health care delivery organizations and their management. Regulation, multi-institutional arrangements, administrative ethics, control, corporate organization, materials management, marketing, reimbursement, contract management, unions, legal issues, planning.

P8520 Health care ethics: development and management of public policy, 2 points.

Examination of key ethics issues as developed in public policy and implemented in health care organizations. Integrates the reading of original public policy documents, legal decisions, and theoretical commentary to facilitate understanding the dynamic and emergent ethical issues in health care and how they are managed.

P8527 Contemporary dilemmas in health planning, policy, and management, 1 point.

Course material derived from current health services. Primary emphasis on New York City.

P8528 Principles and policies of long-term care, 3 points.

An overview of the principles and policy issues of the provision and financing of long-term care (LTC) for older people, across multiple settings. Issues approached include the goals of long-term care, its provision in various settings, family caregiving, quality, management of transitions between acute and long-term care, and managed care models of long-term care.

P8531 Seminar in health policy and analysis, 3 points.

Prerequisite: *P6503*. Develops skills in the analysis of public policy toward health care, through readings and seminar discussion, critiquing examples from the literature, and through independent research. A major paper, presented to the class, is required.

P8533 Health care financial management, 3 points.

Prerequisite: Courses in general accounting or finance. Economics and biostatistics courses are helpful but not required. Provides students with an understanding and appreciation of health care strategic financial planning and management. Topics to be covered include the financial planning perspective of executive decision making, physician/hospital integration analysis, reimbursement methodologies, cost allocation strategies, capitation, and risk sharing. Current and proposed federal and state regulations and their impact on the health care industry are discussed.

P8534 Information management, 3 points.

Focus is on training the health care executive how to manage the selection and staffing of health information systems (HIS) in a variety of organizations, including HMOs, Internet companies, government, pharmaceutical concerns, MSOs, IDNs, hospitals, long-term care facilities, bio/med-tech firms, physi-

cian practices, IPAs, pharmacies, PPOs, and consumer health groups.

Readings and lectures focus on the nature and the uses of health care information systems in these settings. Develops skills to (1) coordinate the information systems plan with the organizational plan, (2) perform HIS needs analysis, (3) develop and implement HIS RFP, (4) understand fundamentals of HIS terminology and project management.

P8537 The political economy of health care, 3 points.

An overview of health policy issues in the financing and reform of the U.S. health care system, with major foci on workforce issues, technology, academic health centers, and chronic disease, in which the tensions between managed care and the competitive market are assessed in terms of the trend of government to finance about half of all national health expenditures.

P8541 Cost-benefit analysis in health, 3 points.

Prerequisite: *P6503* or permission of the instructor. Review of issues and methods of assessing health care technologies and related programs. Emphasizes methods to perform economic evaluations, including cost-effectiveness and cost-benefit analysis; methods to assess efficacy, effectiveness, and safety of health care technologies; effectiveness research; and applications to clinical and public policy. Term paper, critical appraisals of articles, and in-class participation.

P8546 Government's roles in the U.S. health insurance system: Medicare, Medicaid, and the uninsured, 3 points.

Seminar offering an in-depth analysis of government's multiple roles in the United States' patchwork system of health insurance coverage. Explores Medicare and Medicaid's roles in providing coverage to their target populations, how the programs have responded to recent funding pressures, and the current debates surrounding each program's future. Examines the makeup of the uninsured and the importance of health insurance, as well as the problem of the uninsured, from a state policy perspective, before turning to an assessment of current federal proposals to expand coverage. An introductory segment provides a national overview of health insurance coverage and health care spending, as well as an initial examination of the employer-based model. A segment on health care quality aims to move the discussion of public financing of health insurance coverage and health care services toward the concept of value. Classroom time is divided between a lecture to set up the weekly topic and its key themes and issues, and an active and informed class discussion that relies on assigned readings. Written assignments include three policy memoranda and a final exam.

P8552 Risk management, 3 points.

An overview of risk-management principles and applications in the health care field. Means of identifying, evaluating, and controlling risks in acute care, ambulatory care, and managed care environments are presented, as well as current events and legislation impacting risk-management efforts. Methods for structuring and evaluating the effectiveness of risk-management programs are also considered.

P8557 Managerial and organizational behavior, 3 points.

Introduces the principles and practices of management and organization in health care settings, focusing on two levels of analysis: (1) the behavior of individuals within the organization and (2) the behavior of the organization as a unit. Social science perspective draws on organizational psychology, sociology, and related disciplines. Provides students with knowledge and skills to understand, predict, and manage individual and group behaviors. In addition, assists students in developing expertise at analyzing, implementing, and changing the design and culture of health care organizations.

P8558 Strategic management, 3 points.

Prerequisite: *P6530* or the instructor's permission. The course has two primary objectives: (1) to introduce and apply analytical frameworks used in formulating and implementing strategies at the general manager/senior

executive level, and (2) to integrate managerial skills acquired in other courses and through personal experience. Considers questions of mission and values and questions of strategy and operations. Covers both strategy formulation and strategy implementation. Emphasizes the multiple, complex requirements of the leader/manager's job: analysis, creativity, and action. Uses a combination of cases, readings, lectures, discussions, and reports. Students are expected to take an active role in each session. Written case analyses, in-class participation, and individual written assignments.

P8560 Collective bargaining in health institutions, 3 points.

The process of collective bargaining, its characteristics and place in our society, and the dynamics of labor relations and the environment in which the legal structure operates; the evolution and current problems of collective bargaining, the reason for these trends, and their consequences for the overall function of labor relations.

P8563 Managed care and quality: the promise and the reality, 2 points.

Managed care is one of a number of factors that are influencing changes in the health care industry, and many of these influences are far more powerful. Therefore, managed care cannot adequately be studied in the absence of a comprehensive and detailed understanding of the structural changes through which the industry is going. The objective of this course is to identify and analyze the changes that are occurring in the industry, the underlying reasons, including managed care, and what the probable outcomes may be. Organizational responses to these external and internal pressures are analyzed. Managed care is also explored on a detailed basis, including benefits, acceptance of risk, actuarial issues, capitation, marketing, and management. Student evaluation is based on class participation, a research paper, and a final exam.

P8564 Health-related issues in quality of life across the adult life course, 3 points.

Competition over scarce resources for health services, cost-effectiveness goals, and consumer demands have led to an increased interest in quality-of-life evaluation. The appraisal of quality of life calls for the use of rigorous scientific methods. To that end, recent advances in the field have focused on conceptual understanding and ways to construct measures of quality of life that are valid, reliable, and sensitive. This course explores quality-of-life issues germane to fundamental research, public health, and policy applications, and for clinical purposes. Employs case-centered methods to critically examine the language, tools, and uses of quality-of-life assessment throughout adulthood and later life. Also explores ways to evaluate quality of life across diverse groups and in special populations such as gender, culture, psychiatric and physical impairment, the terminally ill, and in various care settings.

P8565 Health care quality management, 3 points.

Prerequisite: *P6530*. A practical introduction to the concepts, methods, and techniques of quality improvement in health care. Emphasis on theories and techniques for effective teamwork, and on approaches and tools for process-based performance improvement. Students are expected to relate topics covered in class to current or recent work experience. Seminar discussions, group exercises, readings, guest speakers. Self and peer evaluations, class participation, written assignments, and a final team project.

P8575 Cross-national health policy, 3 points.

Surveys the policy responses of a range of nations to the strains imposed by the evolution of modern health care systems. Students isolate the most salient pressures for policy change, trace the debates over and emergence of major strategic options, seek to explain why nations differ in their policy choices, explore the pros and cons of some of these approaches, and draw implications for U.S. policy debates. Students should leave the course with

an enhanced understanding of the range of strategic responses to the major policy problems facing modern societies, and this understanding should help them to comprehend more fully both the dynamic environment in which they work and the complexities of health care reform.

P8581 Practicum seminar in health policy and management, 0-1 point.

Required seminar for M.P.H. students in Health Policy and Management to take in the fall following their summer practicum experience. Objective is to integrate students' knowledge gained through their practicum experience with readings and discussions in the fields of health management and policy. Each student develops a case study of his/her practicum experience. Practicum preceptors (generally alumni) and relevant faculty members provide feedback. Students learn to develop case study methodology and to create effective presentation styles. Enables students to integrate practical experiences with public health principles taught within the academic program.

P9500 Doctoral reading seminar, 0.5 point.

This seminar is prerequisite to *P9502*. Both *P9500* and *P9502* are required of first-year doctoral students. Readings in health administration research are selected by the faculty at large and coordinated by one or two faculty members in order to expose the students to a broad range of subjects. Students are expected to discuss and critically analyze theory and method in health policy and management with guidance from relevant faculty members. Intended to serve as an area for discussion and inquiry regarding both current and historical issues in health administration policy and research.

P9502 Doctoral research seminar, 0.5 point.

Monthly seminar, limited to Dr.P.H. students in Health Policy and Management who are required to enroll for credit for four semesters (first two years of study) and then continue to attend as auditors during every semester until they have satisfactorily completed the qualifying examinations. Presentations on current research and the research process by advanced doctoral students, faculty, and guest lecturers, and discussion of research issues, are intended to aid students in formulating and carrying out dissertation research. Presentation required.

P9550 Alternative delivery systems, 3 points.

An examination of the development and effectiveness of several non-traditional forms of health care delivery, including health maintenance organizations, preferred provider organizations, surgicenters, investor-owned hospital chains, free-standing birthing centers, and urgent care centers. Consideration is also given to substance abuse treatment programs and a national global-budgeted program with salaried physicians, such as the Veterans Administration. The implications of alternative delivery systems for quality of care, equity in access, service to the disadvantaged, and health care expenditures are discussed.

P6590, P8590 Tutorials in health policy and management, 1 to 6 points.

Tailored to the particular interests and needs of individual students. They may take many forms—literature reviews, research projects, field trips, other special studies, or learning experiences. The objective is to enrich the student's program.

P9594 Tutorial: advanced research techniques in health policy and management, 3 points.

Prerequisite: *P8502*. Presentations of advanced research techniques in health policy and management. Students work in groups or individually on the planning and design of a research study, and on the execution of every step except actual data collection. Each group or person prepares a report on the objectives, detailed plans, and significance of the research.

POPULATION AND FAMILY HEALTH

Degrees offered:

M.P.H., Reproductive, Adolescent, and Child Health 70
M.P.H., Forced Migration and Health 71

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Nicholas Cunningham, *M.D. (Emeritus)*

Sally A. Lederman, *Ph.D. (also Human Nutrition)*

William A. Van Wie, *Dr.P.H.*

SENIOR LECTURERS

Patricia Bailey, *Dr.P.H.*

Barbara Blum, *B.A.*

Richard J. Brennan, *M.B.B.S.*

Judith A. Fortney, *Ph.D.*

Stephen Lewis

Jason B. Smith, *Ph.D.*

Michael J. Toole, *M.B.B.S.*

LECTURERS

M. Barbara Cicatelli, *M.A.*

Jean Pakter, *M.D.*

Leslie Roberts, *Ph.D.*

ASSOCIATES

Steve Hansch, *M.P.H.*

Gerald Martone, *M.S.*

Susan Purdin, *M.P.H.*

Overview

The Heilbrunn Department of Population and Family Health addresses the sexual, reproductive, adolescent, and child health conditions that confront communities throughout the world, both settled communities and communities that have been displaced as a result of political or environmental emergencies. The department also has a commitment to addressing the health needs of the northern Manhattan communities in which it is located. It contributes to the improvement of community health by supporting programs that (1) educate future generations of public health workers, (2) provide direct services to populations in need, and (3) promote research and policy analyses that increase knowledge and that contribute to the effectiveness and quality of service delivery programs. The department's goal of improving community health will be achieved when teaching, service, and research contribute, in a coordinated way, to identifying and implementing strategies to improve health.

The work of the department is multidisciplinary. Department faculty and staff have diverse training and backgrounds, and represent such fields as clinical nursing and medicine, epidemiology, demography, sociology, psychology, law, psychiatry, social work, program administration, and public health. A point of unity across the department is the recognition of the extent to which economic, structural, cultural, and legal factors directly impact health status and services.

The department is based on fundamental respect for the dignity and rights of all people—women, men, adults, adolescents, and children. Acknowledging the fundamental importance of individual rights

requires that the department take account of the views, experiences, and priorities of the populations it serves. The department is committed to being actively involved in providing direct health care services as well as in developing health programs, critically assessing the impact of policy on health, and engaging in advocacy efforts to promote health in its broadest sense. It does this work directly or by providing technical assistance to governmental and nongovernmental organizations as well as to community groups. These efforts serve as a base for the research and teaching efforts within the department.

The department offers three master's-level training programs—in reproductive, adolescent, and child health; in forced migration and health; and in sexuality and health. The Sexuality and Health Program is jointly offered by the Heilbrunn Department and the Department of Sociomedical Sciences. Beginning in 2004, the department will cosponsor a new Schoolwide program in Global Health. The faculty in the department publish widely, including research papers, health reports, and service manuals. Comprised of 200 staff members located in New York and in several countries in Africa and Latin America, the department has an annual budget of approximately \$30 million, funded by government agencies, foundations, individuals, and Columbia University.

Learning Objectives

The strength of this department's academic programs is its practice-based training model, which provides a finely tuned balance of theory and practice. The integration of teaching, research, and service activities provides unique learning opportunities for students. The department runs a variety of community-based reproductive, adolescent, and child health programs in northern Manhattan that provide valuable opportunities for training students and for conducting service-based research. The multidisciplinary faculty and students are involved in the following activities: program development, implementation, and evaluation; policy analysis; and program-based and more basic research. These activities are conducted at the local, city, state, and national levels as well as in many regions of the developing world, including Africa, Southeast Asia, and Latin America.

The Heilbrunn Department of Population and Family Health (HDPFH) aims to provide leadership in the search for solutions to the critical public health problems in the fields of sexual, reproductive, adolescent, child, and refugee health in a global context. In the program, students acquire the necessary base of knowledge, skills, and broader perspectives to develop and implement policies, programs, and research within these areas. Upon completing the program, students assume roles as policy makers and analysts, program developers, administrators, evaluators, and applied researchers within the fields of reproductive, adolescent, child, and refugee health. Graduates are employed in a variety of federal, state, local, and international governmental and nongovernmental organizations, service delivery programs, and humanitarian and research organizations.

Academic Programs

MASTER OF PUBLIC HEALTH (M.P.H.)

Reproductive, Adolescent, and Child Health Track

The program is designed to prepare public health professionals to assume leadership positions in the fields of reproductive, adolescent, and child health. To do so, it provides them with the necessary theoretical and broader sociocultural perspectives, technical and substantive knowledge, and program and research skills.

The department offers a core curriculum within the M.P.H. degree program that incorporates both domestic and international perspectives. Requirements are concentrated in four areas of study: technical knowledge; substantive knowledge; research methods; and skills courses in program development, evaluation, and management. The training program is closely linked to the department's domestic service delivery programs, and students are required to become involved in those programs through a supervised practicum placement. Additional involvement is encouraged through internships, tutorials, and graduate research assistantships.

Subject areas, presented from both domestic and international perspectives, include sexual and reproductive health; adolescent health; child health; health and human rights; program development; program evaluation; management of health care organizations; service-based research design, instrument development, data collection, and data analysis; and forced migration and health. Supplementary knowledge and skills can be gained through courses in other programs, including epidemiology, biostatistics, health policy and management, sociomedical sciences, anthropology, sociology, international public affairs, and health education (at Teachers College, Columbia University).

Preference is given to applicants with at least two years of post-college work experience in public health or health-related fields. Admission is for the fall term only.

M.P.H., Reproductive, Adolescent, and Child Health Track, 45 Points*

Core Course Requirements

Rule: Complete all (see page 20)

Track Requirements	Points
<i>Rule: Complete all</i>	
P6621 Technical Issues in Reproductive Health	2
P8619 Research Design and Data Collection: Service-Based Research I	3
P8697 Practicum Seminar (P/F)	2

Required Track Elective

Rule: Complete one

P8605 Public Health Aspects of Reproductive Health Care	3
P8616 Public Health Aspects of Adolescent Health	3
P8628 Public Health Aspects of Child Health	3

Required Track Elective*Rule: Complete one*

P8623 Quantitative Data Analysis: Service-Based Research II	3
P8637 Qualitative Data Analysis: Service-Based Research II	3

Required Track Electives*Rule: Complete two*

P8601 Public Health Program Planning	3
P8614 Management of Health Care Organizations	3
P8640 Quantitative Methods in Program Evaluation	3
P8670 Training for International Health and Family Planning Programs	2

Track Electives*Rule: Complete 7 or 8 points*

P8488 Epidemiologic Research Topics in Developing Countries	3
P8615 Current Issues in Sexual Health	3
P8620 Working with Women and Children in War Zones: Protection, Vulnerability, and Mental Health	3
P8629 PopFam Seminars: Addressing Timely Issues in Population and Family Health	1
P8643 Maternal and Child Health in International Primary Health Care	3
P8647 Refugee Issues Seminar	1
P8648 Food, Nutrition, and Livelihood in Humanitarian Emergencies	2
P8658 The Health of Latino Children and Families	3
P8673 Reproductive Health for Refugees and Other War-Affected Populations	2
P8679 Investigative Methods in Humanitarian Emergencies	3
P8687 Health Consequences of Forced Migration	3
P8692 Law, Policy, and Rights	3
P8736 Theories and Perspectives in Sexuality and Health	3
PROPOSED AIDS and Conflict	2
PROPOSED Ethics and Human Rights Perspectives on Sexuality and Sexual Health	1
PROPOSED History of Sexual Health Promotion	2
PROPOSED Theories and Strategies of Sexual Health Promotion	3
PROPOSED Water and Sanitation in Complex Emergencies	2

Other Requirements

Field Practicum
Capstone Paper
Medical Background Exam

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Forced Migration and Health Track

The program focuses on the relationship between forced migration and health. An emphasis is placed on quantitative and qualitative methods that are best suited to the assessment of health needs and to the design and evaluation of health programs.

Subject areas include an introduction to the relationship between forced migration and public health, investigative methods in humanitarian emergencies, the psychosocial impact of forced migration, reproductive health among refugee and war-affected populations, and health and human rights for refugees. The program also organizes a seminar series, where students have the opportunity to meet professionals in the field.

Students who will benefit most from the program are those who have some experience in international humanitarian relief (either at headquarters level or in the field) and those who wish to pursue careers as public health professionals in the field. Admission is for the fall term only.

M.P.H., Forced Migration Track, 45 Points***Core Course Requirements***Rule: Complete all (see page 20)*

Track Requirements	Points
<i>Rule: Complete all</i>	
P8619 Research Design and Data Collection: Service-Based Research I	3
P8674 Refugee Issues Seminar	1
P8679 Investigative Methods in Humanitarian Emergencies	3
P8687 Health Consequences of Forced Migration	3
P8688 Forced Migration Practicum Seminar	1

Required Track Electives*Rule: Complete three*

P8620 Working with Women and Children in War Zones: Protection, Vulnerability, and Mental Health	3
P8648 Food, Nutrition, and Livelihood in Humanitarian Emergencies	2
P8673 Reproductive Health for Refugees and War-Affected Populations	2
P8692 Law, Policy, and Rights	3
PROPOSED AIDS and Conflict	2
PROPOSED Water and Sanitation in Complex Emergencies	2

Track Electives*Rule: Complete at least two from Group A or Group B or Group C***Group A**

P8438 Epidemiology II: Design and Conduct of Observational Epidemiology	3
P8499 Field Methods in Epidemiology	3
P8623 Quantitative Data Analysis: Service-Based Research II	3
P8637 Qualitative Data Analysis: Service-Based Research II	3

Group B

P8406	Epidemiology of Communicable Diseases	3
P8438	Epidemiology II: Design and Conduct of Observational Epidemiology	3
P8442	Epidemiology and Control of Tuberculosis	3
P8465	Epidemiology of HIV and AIDS	3
P8475	Emerging Infectious Diseases	3
P8488	Epidemiologic Research Topics in Developing Countries	3
P8499	Field Methods in Epidemiology	3

Group C

P8601	Public Health Program Planning	3
P8614	Management of Health Care Organizations	3
P8640	Quantitative Methods in Program Evaluation	3
P8670	Training for International Health and Family Planning Programs	2

Other Requirements

Field Practicum

Capstone Paper

Medical Background Exam

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Sexuality and Health Track

This interdepartmental program, jointly created and delivered by the Departments of Population and Family Health and of Sociomedical Sciences, examines the relationship between sexuality and health from an interdisciplinary perspective. The program is the first of its kind to provide public health students with the conceptual tools and practical skills necessary to identify, analyze, and address health issues connected to sexuality, and within a global context. The practical skills include the design, implementation, and evaluation of policies, programs, and advocacy efforts to enhance sexual health. Program graduates will be likely to work in organizations that address sexual health exclusively or as part of a broader agenda. Graduates of the Sexuality and Health Program will be able to differentiate and assess key frameworks for understanding sexuality, sexual health, and sexual health promotion; and design, implement, and evaluate strategies to promote sexual health on individual and community levels.

Requirements are concentrated in four areas of study: public health core courses, theoretical and substantive courses, skills and methods courses, and elective courses.

Subject areas include perspectives and theories of sexuality; an overview of sexual health issues; ethics and human rights perspectives on sexuality and sexual health; promoting sexual health; history of sexual health promotion; program design; advocacy skills; service-based research methods; and quantitative and qualitative data analysis.

Preference is given to applicants with at least two years of post-college work experience in public health or health-related fields. Admission is for the fall term only. For more information, see page 24.

M.P.H., PFH Sexuality and Health Track, 45 Points*

Core Course Requirements

Rule: Complete all (see page 20)

Track Requirements

Rule: Complete all

P8615	Current Issues in Sexual Health	3
P8736	Theories and Perspectives on Sexuality and Health	3
PROPOSED	Ethics and Human Rights Perspectives on Sexuality and Sexual Health	1
PROPOSED	History of Sexual Health Promotion	2
PROPOSED	Promoting Sexual Health: Theories and Strategies	3

Required Research Methods Course

P8619	Research Design and Data Collection: Service-Based Research I	3
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Required Research Methods Course

Rule: Complete one

P8623	Quantitative Data Analysis: Service-Based Research II ^I	3
P8637	Qualitative Data Analysis: Service-Based Research II ^I	3

Required Skills Courses

Rule: Complete two

P8601	Public Health Program Planning or PROPOSED Advocacy Skills	3
AND		
P8640	Quantitative Methods in Program Evaluation or P8614 Management of Health Care Organizations	3

Required Practicum

P8697	Practicum Seminar (Pass/Fail) Practicum	3
		0

PFH Track Electives*

Rule: Complete one or two

P6621	Technical Issues in Reproductive Health	2
P8488	Epidemiologic Research Topics in Developing Countries	3
P8605	Public Health Aspects of Reproductive Health Care	3
P8616	Public Health Aspects of Adolescent Health	3
P8620	Working with Women and Children in War Zones: Protection, Vulnerability, and Mental Health	2
P8628	Public Health Aspects of Child Health	3
P8629	PopFam Seminars: Addressing Timely Issues in Population and Family Health	1
P8643	Maternal and Child Health in International Primary Health Care	3
P8648	Food, Nutrition, and Livelihood in Humanitarian Emergencies	2
P8658	The Health of Latino Children and Families	3
P8673	Reproductive Health for Refugees and Other War-Affected Populations	2

P8674 Refugee Issues Seminar	1
P8679 Investigative Methods in Humanitarian Emergencies	3
P8687 Health Consequences of Forced Migration	3
P8692 Law, Policy, and Rights	3
PROPOSED AIDS and Conflict	2
PROPOSED Water and Sanitation in Complex Emergencies	2

Other Requirements

Field Practicum

Capstone Paper

Medical Background Exam

Forty-five points are required for graduation. Points for dual degree students vary; follow the guidelines for your program.

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

¹ Prerequisite: P8619 Research design and data collection

² Elective courses may be chosen from any Columbia University graduate school. Students are responsible for securing permission from the relevant instructor, department, or school.

The Latino Fellowship Program

Qualified individuals are invited to apply for The Latino Fellowship Program. The goal of the program is to increase the representation of Latinos in the public health workforce. Appropriate candidates are early career professionals whose past work experience and future career plans demonstrate a commitment to addressing health disparities confronted by a large and growing Latino population in the United States. Two fellowships are offered each year. Eligibility for the fellowship is contingent upon being admitted as a full-time M.P.H. candidate in the Heilbrunn Department of Population and Family Health, in either the Program on Reproductive, Adolescent, and Child Health or the Program in Sexuality and Health. For more information about the fellowship, including deadlines, eligibility requirements, and application materials, see <http://www.mailman.hs.columbia.edu/popfam/teach/hfp.html>

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6621 **Technical issues in reproductive health**, 2 points. Quarter course. Introduces students to the major issues concerning the technical and public health aspects of reproductive health, including the fundamentals of pregnancy, contraception, abortion, sexually transmitted diseases, and major reproductive health hazards.

P8601 **Public health program planning**, 3 points.

Students learn to design a viable and culturally appropriate sexual and reproductive health program, in both a U.S. and developing-country context. Students develop skills in analyzing local needs and resources;

articulating program goals and objectives; designing relevant program components; planning program monitoring and evaluation; and raising funds. Readings, lectures, class discussions, case studies, and guest speakers. Students are required to complete short periodic assignments and develop a program proposal.

P8605 **Public health aspects of reproductive health care**, 3 points.

Students gain a general understanding of important reproductive health issues and the ways in which various organizations, agencies, and practitioners address them. Topics covered include contraception, abortion, pregnancy complications and outcomes, family policies, and infectious diseases such as HIV/AIDS and STDs. Specifically, students learn to identify key policy issues concerning each of the topic areas mentioned above from both a developed and developing-country perspective, and are able to examine the epidemiologic basis for these policies. Students are expected to discuss various policies and programs by making effective arguments through class participation and a series of short writing assignments.

P8614 **Management of health care organizations**, 3 points.

Focuses on the major management issues in health delivery organizations and develops skills in the key functional areas of strategic planning, management control systems, marketing, cost accounting, and operations management. Attention is given to the delivery of population and family health services. Explores the strategic choices offered by the changing structure of health delivery and the managerial policies needed to execute these choices. Classes rely on the case method of instruction.

P8615 **Current issues in sexual health**, 3 points.

Enables students to critically examine sexual health and specific sexual health issues within a global context. The first part of the course examines sexual health as a concept—what is it and how do we measure it, and what are the macro and micro factors that enable and/or impede sexual health and our efforts to improve sexual health in communities. The focus is particularly on key social factors including culture, gender-based power distributions and norms, racism, community-based attitudes and norms, and poverty and socioeconomic status. The second part focuses on selected sexual health issues including sexual pleasure/desire and well-being; HIV/AIDS; non-volitional sex; and stigmatization and discrimination against sexual minorities. We examine the competing definitions of and causal models for these issues, and how these result in different policy and programmatic approaches to foster sexual health in each of these areas.

P8616 **Public health aspects of adolescent health**, 3 points.

Provides an overview of the current health status of adolescents, both nationally and internationally, with an emphasis on crime and victimization, pregnancy, sexually transmitted diseases, HIV/AIDS, school failure, substance abuse, depression, and suicide. Develops students' understanding of adolescent risk-taking behaviors. Explores adolescent physical, cognitive, moral, and emotional development in a historical and social context. Provides illustrations of the development, implementation, and evaluation of school-, community-, and hospital-based intervention programs.

P8619 **Research design and data collection: service-based research I**, 3 points.

Introduces students to the fundamental concepts and components of research design and familiarizes them with two modes of data collection commonly utilized in service-based research: the focus group and the quantitative survey. Students learn about study design by focusing on the development of research questions and hypotheses, issues of measurement, and types of study designs for an actual research project to be conducted through the HPFH Methods Sequence during the academic year. Students also learn the purposes, strengths, and limitations of

focus groups and surveys, and become familiar with the prefield and data collection activities inherent in each, including respondent recruitment, instrument/form development, interviewer selection and training, and field management. These skills are put to use as students design an instrument, related forms and materials, and a data collection strategy for the year's service-based research project.

P8620 Working with women and children in war zones: protection, vulnerability, and mental health, 3 points.

Focusing on organized efforts to protect women and children in situations of armed conflict and to relieve their human suffering, the course begins with an overview of the ways that modern war and violent conflicts are waged, including their impact on women and children. Reviews a range of protection and mental health interventions undertaken by relief organizations in recent crises, and asks students to reflect on the theoretical and practical aspects of these efforts in the social, political, and cultural contexts in which they were applied.

P8623 Quantitative data analysis: service-based research II, 3 points.

Prerequisite: P8619. Students use SPSS-PC to analyze and interpret the data from the service-based research study that has been the focus of their previous research course. They learn to enter, edit, and clean the data, as well as to generate new, recorded, and scaled variables. They plan and implement analysis strategies based on standard statistical procedures, and interpret and write up the results of their analyses.

P8628 Public health aspects of child health, 3 points.

Provides an overview of global child health issues. Included are discussions of diseases (both acute and chronic) to which children are susceptible, their contribution to child mortality, and the strategies available to parents, health care providers, and communities seeking to reduce childhood diseases. Although designed to help public health professionals identify common trends and patterns affecting child health worldwide, some topics highlight problems of particular concern in the United States or the developing world.

P8629 PopFam seminars: addressing timely issues in population and family health, 1 point.

Students critically assess and illustrate the impact of cutting-edge issues and methods in reproductive, adolescent, and child health, as well as in complex emergencies. Professors from the department plan and facilitate seminars led by both outside and Columbia speakers covering a series of topics exploring a central theme of immediate importance to one of the fields covered in the department or to the field of public health in general. Seminars and readings ground students in the key aspects of an emerging or controversial aspect of work in one field of PFH. Exposure to leading scholars and practitioners and opportunity to debate the issues. Theoretical, practical, and methodological issues are included in the seminars. Requirements include participation in the seminars, completion of the readings, and submission of a brief paper at the end. Course is given pass/fail. Passing grade requires participating in twelve of the fourteen seminars and submitting an adequate final paper.

P8637 Qualitative data analysis: service-based research II, 3 points.

Prerequisite: P8619. While the collection of qualitative data is widespread and growing in service-based research, the credibility and quality of data analysis suffer from an absence of system and rigor in recording, organizing, categorizing, and interpreting qualitative findings. Focusing in particular on observation and interview data, this course introduces a variety of approaches to qualitative analysis and encourages their application through hands-on group work and homework assignments. Although the emphasis is on doing analysis, initial lectures address matters such as research design and methods (observation, in-depth interview, and focus group), and researcher identity and rapport. Topics

covered include recording and organizing field notes, participatory appraisal and analysis, reading data, thematic analysis and coding, data matrices and other visual displays, techniques to generate meaning, validity checks, and effective strategies for writing up/communicating qualitative findings. In the computer lab, students gain experience coding, retrieving, and analyzing focus group data produced during their first research course (P8619) using a qualitative data analysis package.

P8640 Quantitative methods in program evaluation, 3 points.

Students thoroughly examine each component of evaluation and critically assess the foundations and assumptions upon which conclusions are based. Concentration primarily on quantitative methods and reliance on the use of existing (published) evaluations of public health programs (supplemented with a few ongoing evaluations) to help explore and uncover typical evaluation pitfalls in design, analysis, and interpretation. Presents methods for identifying and correcting these pitfalls. Student participation and discussion are key, enabling students to design an evaluation strategy appropriate to the goals and structure of a given program; recognize the strengths as well as the limitations of a program evaluation; and make realistic assessments of evaluation conclusions.

P8643 Maternal and child health in international primary health care, 3 points.

An opportunity for students to learn how maternal and child health (MCH) services provided the basis for primary care in developing countries. Identifies the priority health problems of mothers and children, and analyzes and discusses primary health care (including the UNICEF/G.O.B.I./F.F.) interventions and barriers. Students make group multimedia presentations based on a rich reading list and evaluate each other's performance. The instructors mentor these presentations, react to them, and present a focused summary of the main issues involved. The entire class participates at each session. In the context of an integrated primary care strategy for addressing international MCH problems, students learn the basics of organizing a presentation, teamwork, and training and evaluation according to the principles of Paulo Freire.

P8648 Food, nutrition, and livelihood in humanitarian emergencies, 2 points. Quarter course.

Aims to give students the technical skills necessary to design, oversee, implement, and/or monitor a mix of food aid and nutrition interventions in a refugee setting, complex emergency, or natural disaster. Students are expected to understand the current conventional approaches by NGOs, the World Food Programme, and donors. Students should understand where to turn to gather data or seek additional technical advice. Covers the nutritional epidemiology of famine, the various food needs that occur in different types of crises, the design elements of food aid programming, choices in food distribution, skills in the treatment of severe malnutrition, food logistics, and coordination with NGOs. Examines the underlying goals and concepts of different types of feeding interventions and of market interventions, including food for work, local purchase, and monetization. Looks at specific case histories of relief operations and profiles the activities of different agencies, from UNICEF to Save the Children. Dilemmas of humanitarian action are covered where they involve tradeoffs between food aid and food dependency, livelihood strategies versus life-saving priorities, access vs. security. Micronutrients and food fortification are looked at in depth.

P8658 The health of Latino children and families, 3 points.

As one of the youngest and fastest growing population groups in the United States, Latinos have a distinct health, economic, and social profile. As such, they pose both a challenge and an opportunity for the public health community to address their health needs. Through course readings, discussions, lectures, and out-of-class assignments, students

are able to identify and analyze the economic, institutional, and socio-cultural factors affecting the health and well-being of Latino children and families, as well as existing policies and programs to ascertain the extent to which they respond to the needs of the population. Students are required to prepare an editorial essay on a course-related topic of interest and develop a policy and/or program initiative to eliminate disparities, gaps, or needs that can be addressed by public health interventions.

P8670 Training for international health and family planning programs, 2 points. Quarter course.

Teaches participants key principles and skills needed to design, deliver, and evaluate participatory training activities for health and family planning programs in developing countries. At the conclusion of the course, participants have practiced and are able to carry out the major steps of the training process. In addition, participants are able to place training and human resource development in the overall context of program management and discuss principles of adult learning, training for empowerment, competency-based training, and the management and logistics of training programs.

P8673 Reproductive health for refugees and other war-affected populations, 2 points. Quarter course.

Students analyze the policy and program factors influencing the provision (or nonprovision) of reproduction health services for war-affected populations. Specifically, students study the history of reproductive health service delivery in conflict-affected settings, review internationally established guidelines for meeting reproductive health needs of refugees and other war-affected populations, assess enabling and impeding factors in selected global trouble spots, describe a reasoned programmatic approach to a particular situation, and discuss the current state of the field and future directions for reproductive health services in complex emergency settings. Teaching methods include case studies of reproductive health programs in forced migrant camp and noncamp settings in Africa, Asia, and Europe, as well as lectures, discussions, student-led classes, videos, and expert guest speakers. Requirements include class participation, a group presentation, and a final paper.

P8674 Refugee issues seminar, 1 point.

The Refugee Issues Seminar Series is intended to give a broad overview of the issues that health professionals should be aware of when functioning in refugee settings abroad or when working in organizations that address refugee needs in the United States. Some speakers directly address health questions, while others provide a framework for understanding the ethical, practical, and political issues health professionals are likely to confront in refugee settings. The seminar is open to the public, and nonregistered individuals are invited to attend the seminars that interest them.

P8679 Investigative methods in humanitarian emergencies, 3 points.

A more in-depth treatment of certain issues raised in *P8687 Health consequences of forced migration*. Presents and discusses qualitative and quantitative methods for establishing priorities for health-related interventions and for evaluating their impact in refugees and displaced populations. A series of case studies, progressing in difficulty, forms the nucleus of the course.

P8687 Health consequences of forced migration, 3 points.

Focuses on the public health consequences of complex humanitarian emergencies. Does displacement, either within countries or across international borders, have an impact on rates of morbidity and mortality? If so, how are these best measured in an emergency setting? What are the major causes of disease and death in different settings? What are the principal health interventions and how can these be implemented

to keep this large-scale suffering to a minimum? What is the best public health approach to adopt during the emergency phase, during the stabilization period, and in the longer term? Also examines the role of different international and bilateral foreign assistance agencies in preventing and responding to complex humanitarian emergencies. Students prepare descriptions and critiques of these agencies for discussion.

P8688 Forced migration practicum seminar, 1 point.

Allows second-year students to present the results of their summer overseas internships and engage in discussion with fellow students and faculty about technical, programmatic, and ethical issues faced by health professionals working on complex emergencies. Students hone their presentation skills and make critical observations about public health practice. Each student completes a twenty-page capstone paper that demonstrates a synthesis of knowledge acquired through the internship experience, practicum seminar, and other related courses. First-year students are encouraged to attend.

P8692 Law, policy, and rights, 3 points.

Explores the way that law, policy, and rights function to shape public health, with particular emphasis on the implications of this interaction for rights-based approaches in health. The first sessions introduce the principles, practices, and underlying assumptions of law, policy, and rights as categories of tools. The class then turns its attention to four issue-based modules on maternal mortality, "trafficking," HIV/AIDS, and welfare reform. Course format includes participatory exercises, examination of case studies, guest speakers, and discussion. Because of the format, participation and familiarity with the assigned readings are essential. In addition, course requirements include three short papers and a final paper.

P8697 Reproductive, adolescent, and child health practicum seminar, 2 points.

The goal of the seminar is to help students critically reflect on public health practice within the context of the students' practicum placements, and examples for the seminar are drawn from student experience. Students make presentations and discuss public health practice topics, including organization missions and goals, community involvement, cultural sensitivity/competence, balancing daily versus long-term program needs and activities, and monitoring and evaluation.

P6690, P8690, P9690 Tutorials in population and family health, 1 to 6 points.

Tailored to the particular interests and needs of individual students, these tutorials may take many forms—seminars, literature reviews, research projects, field trips, and other special studies or learning experiences—drawing upon the expertise of faculty members in these areas.

Also:

Offered through the Department of Epidemiology:

P8488 Epidemiologic research in developing countries

P8499 Field methods in epidemiology

Offered through the Department of Sociomedical Sciences:

P8736 Theories and perspectives on sexuality and health

SOCIOMEDICAL SCIENCES

Degrees offered:

M.P.H., Aging and Public Health	80	M.P.H., Research Track	81
M.P.H., Health Promotion and Disease Prevention	80	M.P.H., Sexuality and Health	82
M.P.H., Evening Program in Health Promotion and Disease Prevention	81	M.P.H., Urbanism and Community Health	82
M.P.H., History and Ethics of Public Health and Medicine	81	Dr.P.H.	83
		Ph.D.	83

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Jack Elinson, Ph.D. (Emeritus)

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Geeta Rao Gupta, Ph.D.

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Debbie Indyk, Ph.D.

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Mary Kenny, Ph.D.

Corinne Kirchner, Ph.D.

Deborah A. Levine, M.S.W.

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Daniel R. Vassgird, Ph.D.

Anahi Viladrich, Ph.D.

David Willis, M.P.H.

Overview

The Department of Sociomedical Sciences brings an interdisciplinary approach to public health, applying social science theory and methods from anthropology, economics, ethics, history, political science, psychology, and sociology to current public health issues.

The diverse research interests and expertise of the SMS faculty are reflected in the broad range of courses offered in the department. Students are able to explore a wide range of public health issues, including sexuality, aging, health promotion and disease prevention, urban health, HIV/AIDS, homelessness, drug use, violence prevention, tobacco, health care access, and immigrant health.

Faculty are involved in a broad range of research projects, including collaborative projects with community-based organizations throughout northern Manhattan and NYC, state and city departments of health, and local, state, national, and international public health agencies. This research experience and collaboration informs teaching, facilitates students' development of applied public health skills, and provides opportunities for students to get involved in community-based research, program development, and evaluation projects.

The department also serves as the base for a number of academic centers, including the Center for Applied Public Health, the Harlem Health Promotion Center, the Center for the History and Ethics of Public Health, the New York and New Jersey Public Health Training Center, the Center for the Psychosocial Study of Health and Illness, and the Center for Sexuality, Gender, and Health. These centers provide additional opportunities for students to develop skills and knowledge in diverse areas of public health research and practice. Many of the centers provide opportunities for graduate research assistants, as well as opportunities for M.P.H. students to develop

practica projects. The centers also sponsor seminar series, which expose students to current research and enable them to interact with experts in the various areas of public health, additionally providing fora for students to present and discuss their own research.

The SMS student body has a broad range of public health experience and expertise as well, making the classroom a rich and collaborative learning environment. Students come from a range of backgrounds, including local and state departments of health, community-based organizations, health care delivery settings, and national and international nongovernment organizations.

Students in each of the programs in Sociomedical Sciences will develop the knowledge and skills that will enable them to use social science theory and methods: to analyze contextual factors (social, political, economic, cultural, ethical) that shape people's experience of health and illness; to apply public health research grounded in the social sciences (anthropology, ethics, history, political science, psychology, and sociology) to design and implement effective health promotion interventions; to analyze the historical, social, and political circumstances that have shaped health policy; and to use these analyses to inform current health policy development.

Academic Programs

MASTER OF PUBLIC HEALTH (M.P.H.)

The Sociomedical Sciences Department is organized around the study of social and behavioral factors that affect health and health care. The department offers six tracks within the master's program: the Aging and Public Health track, the Health Promotion and Disease Prevention track, the History and Ethics of Public Health and Medicine track, the Research track, the Sexuality and Health track, and the Urbanism and Community Health track.

M.P.H., 45 Points*

Core Course Requirements

Rule: Complete all (see page 20)

Department Requirements	Points
<i>(applies to all tracks except Sexuality and Health)</i>	
<i>Rule: Complete one</i>	
P8704 Introduction to Medical Sociology	3
P8755 Introduction to Medical Anthropology	3
P8767 Health Psychology and Public Health	3
P8773 A Social History of American Public Health <i>(not History and Ethics Track)</i>	3
P6503 Introduction to Health Economics <i>(for History and Ethics Track only)</i>	3

Rule: All students in the department must pass a good clinical practices certification exam.

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Aging and Public Health Track

The program in Aging and Public Health will provide students with a comprehensive understanding of the special public health challenges of an aging population. It offers a public health perspective on aging that encompasses both applied and policy dimensions. In addition to the required public health core curriculum, students will take courses designed to address aging-related quality-of-life issues, successful aging, life course transitions, elder-based health promotion and disease prevention efforts, chronic disease and disability, technology and health, bioethical issues related to health care and the elderly, and public health issues in special aging populations. A master's essay and practicum are also required. This program is designed for students who have an interest in aging-related concerns and issues, and who are seeking a public health perspective. The program is also relevant to a broad array of public health professionals, including those who are providing clinical services, managers and administrators of aging-related institutions, community-based social service and health care agencies, geriatric clinicians, and health services researchers.

M.P.H., Aging and Public Health Track*

Track Requirements	Points
<i>Rule: Complete four</i>	
P8714 Public Health and Aging	3
P8701 Social Dimensions of Aging	3
P6794 Overview of Geriatrics and Gerontology	3
P6781 The Use of Large-Scale Data Sets	3
P8744 Caregiving in Chronic Illness	3
P6741 Overview of Long-Term Care	3

Department Elective

Rule: Complete one SMS elective

Track Electives

Rule: Complete at least three or four. Courses can be outside of department with advisor's approval.

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Health Promotion and Disease Prevention Track

The Health Promotion and Disease Prevention track is designed for students who are interested in concentrated study in health promotion and disease prevention issues and who are more interested in an applied rather than a research approach to public health issues. This track prepares students to plan, implement, and evaluate health promotion and disease prevention programs in government health agencies, community-based organizations, and the private sector. Students are required to have two years of work experience in public health or a related field before entering this program. All M.P.H. students must complete a practicum requirement. Health Promotion and Disease Prevention track students must complete a master's essay or integrative project, which may be done in conjunction with the practicum experience.

Evening Program in Health Promotion and Disease Prevention

The Evening Program in Health Promotion and Disease Prevention is for working professionals and others who find evening study preferable and who want to develop advanced skills in health promotion and disease prevention. Professionals studying in this program will learn to plan, implement, and evaluate health promotion and disease prevention programs in government health agencies, community-based organizations, and the private sector. The Evening Program can be completed in five semesters by taking three courses per semester. Students attend classes two evenings a week in an early session and a late session. Courses, requirements, and faculty are the same as for the Health Promotion and Disease Prevention track, including the master's essay/integrative project. Practicum credit may be given for relevant work experience.

M.P.H., Health Promotion and Disease Prevention Track*

Track Requirements	Points
<i>Rule: Complete all</i>	
P6727 Preventive Health Behavior	3
P8772 Planning and Implementation of Health Promotion Programs	3
P8705 Seminar in Evaluation of Health Programs	3

Department Electives

Rule: Complete two SMS electives

Track Electives

Rule: Complete at least three or four: three if essay is taken for credit; four if it is not taken for credit

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

History and Ethics of Public Health and Medicine Track

The M.P.H. offered in the Program in the History and Ethics of Public Health and Medicine track is the only one of its kind. It emphasizes training health professionals in historical methods and provides a unique opportunity to develop an understanding of the context in which ethical considerations have emerged in public health and medicine. Students interested in the impact of history on public policy, public health measures, and attitudes toward health and illness will find an opportunity to use history and ethics as a means of informing and shaping contemporary policy debates. Public health practitioners, policy analysts, epidemiologists, clinicians and medical center staff, and clergy, along with recent college graduates with training or an interest in history, ethics, sociology, political science, philosophy, or other humanities and social sciences, are encouraged to apply. The program brings together the faculties of three of the nation's leading research and educational units—the Department of Sociomedical Sciences at the Mailman School of Public Health of Columbia University, the Center for the Study of Society and Medicine at the Columbia College of Physicians & Surgeons, and the Department of History at the Columbia University Graduate School of Arts and Sciences—plus other experts in the field from affiliated centers. In addition to the required School and Sociomedical

Sciences Department courses, and a sequence of public health history, policy, and ethics courses, students will take electives to develop proficiency in different areas of social, political, and intellectual history, public health policy and law, or ethics.

M.P.H., History and Ethics of Public Health and Medicine Track*

Track Requirements	Points
<i>Rule: Complete all</i>	
P8716 Historiography of Public Health and Medicine	3
P8773 A Social History of American Public Health	3
G8732 Social History of American Medicine	3

Track Elective

Rule: Complete one

P9740 History and Policy	3
P8747 Health Promotion, Disease Prevention, and the State	3
P8740 History of Epidemiology	3

Department Electives

Rule: Complete at least four; may complete six or more

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Research Track

The Research track focuses on public health research with a strong social science orientation. Training is provided in social science theory and methods, and the application of social science research to public health issues and evaluation. The Research track prepares students to participate as members of research teams, enabling them to contribute to various phases of research, such as data collection and data analysis. This track is recommended for students who seek research careers at the M.P.H. level or who plan to pursue doctoral studies or postdoctoral studies, or for postdoctoral students from other fields who wish to pursue public health research.

M.P.H., Research Track*

Track Requirements	Points
<i>Rule: Complete all</i>	
P8774 Introduction to Sociomedical Sciences	3
Research Methods	
P8438 Design and Conduct of Observational Epidemiology	3
P8100 Applied Regression Analysis II	3

Required Track Electives

Rule: Complete two

P8775 Qualitative Research Methods I	3
P9775 Qualitative Research Methods II	3
P8786 Ethnographic Methods in Health Research	3
P8705 Seminar in Evaluation of Health Programs	3
P8640 Quantitative Methods in Program Evaluation	3
P8777 Survey Research Methods	3
P6781 Use of Large-Scale National Data Sets	3

P8417 Selected Problems of Measurement	3
P8120 Analysis of Categorical Data	3

Department Elective

Rule: Complete one SMS elective

Track Electives

Rule: Complete at least three or four: three if essay is taken for credit; four if it is not taken for credit

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

Sexuality and Health Track

The Sexuality and Health track is the first of its kind that provides public health students with the conceptual and practical skills necessary to identify, analyze, and address health issues connected to sexuality within a global context. These skills include the design, implementation, and evaluation of policies, programs, and advocacy efforts to enhance sexual health. Program graduates will be likely to work in organizations that address sexual health exclusively or as a part of a broader agenda. The Sexuality and Health track is an interdepartmental program, jointly created and delivered by the Department of Population and Family Health and the Department of Sociomedical Sciences. For more information, see page 24.

M.P.H., SMS Sexuality and Health Track, 45 Points*

Core Course Requirements

Rule: Complete all (see page 20)

Track Requirements	Points
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Rule: Complete all

P8736 Theories and Perspectives on Sexuality and Health	3
P8615 Current Issues in Sexual Health	3
PROPOSED Ethics and Human Rights Perspectives on Sexuality and Sexual Health	1
PROPOSED Promoting Sexual Health: Theories and Strategies	3
PROPOSED History of Sexual Health Promotion	2

Required Research Methods Course

P8619 Research Design and Data Collection: Service-Based Research I	3
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Required Research Methods Course

Rule: Complete one

P8623 Quantitative Data Analysis: Service-Based Research II ¹	3
P8637 Qualitative Data Analysis: Service-Based Research II ¹	3

Required Skills Courses

Rule: Complete one

P8601 Public Health Program Planning	3
PROPOSED Advocacy Skills	3

SMS Elective Courses

Rule: Complete 6 pts. Elective courses may be chosen from any Columbia University graduate school. Students are responsible for securing permission from the relevant instructor, department, or school.

Other Requirements

Field Practicum	0
Master's Integrative Project	3 ²
Medical Background Exam	

Forty-five points are required for graduation. Points for dual degree students vary; follow the guidelines for your program.

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

¹ Prerequisite: P8619 Research design and data collection

² Students have the option to register for 3 points for the Master's Integrative project (P8719). If a student opts not to take it for credit, another elective should be added to the schedule.

Urbanism and Community Health Track

The Urbanism and Community Health track offers a public health perspective on cities that encompasses both applied and policy dimensions, and provides students with a comprehensive understanding of the special health challenges of an urbanized population. The program is designed for students who have an interest in city life and are seeking a public health perspective. This program is also relevant to a broad array of public health professionals, including those who lead community agencies, provide community-level needs assessment, or work in conjunction with city agencies to plan for any and all aspects of the city's future.

M.P.H., Urbanism and Community Health Track*

Track Requirements	Points
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Rule: Complete this course plus three others

P8717 Urban Space and Health	3
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Rule: Complete three

P8750 Urban Space and Health	3
P8741 Globalization, Social Movements, and Community Health	3
P8754 Public Health Decline in Harlem, 1950–1990	3
PLA4112 History of Urbanization and Physical Structure of Cities	3
PLA4319 Introduction to Environmental Planning	3
PLA4540 Urban Environmental Planning	3
PLA4577 Introduction to Geographic Information Systems for Planners	3
P8748 Public Health and the Street Economy	3

Department Elective

Rule: Complete one SMS elective

Track Electives

Rule: Complete at least three or four: three if essay is taken for credit; four if it is not taken for credit

*This sample curriculum is intended as a guide for program planning. Students develop their curriculum with guidance from their advisor using the department's student handbook at the time they begin their program of study.

CDC/Mailman School of Public Health Collaboration

The Centers for Disease Control and Prevention (CDC) and the Mailman School of Public Health have entered into a collaboration that will provide a set of unique opportunities that will be piloted over the next two to three years. The program, which is the first joint education and training effort of its kind between the National Center for Chronic Disease Prevention and Health Promotion and an accredited school of public health, is being implemented through the Urbanism and Community Health track in the Department of Sociomedical Sciences.

In this pilot program, two incoming M.P.H. students in the fall semester of 2003 will be selected to receive fully paid tuition and required fees while studying at MSPH. Following the first year of study, students will be assigned to an extended, paid practicum for six months with the New York State Department of Health during the summer and fall months (June through December), where they will be engaged in training and/or work experience in Albany (first month) and New York City (remaining months).

Upon completion of the M.P.H. degree, and following other specialized training at CDC, these students must commit to four years of work at the CDC in Atlanta or elsewhere, on CDC assignment, and will be offered an opportunity for a permanent career in public health at CDC.

An evaluation of this collaboration will be conducted for possible expansion to other accredited schools of public health and other centers within CDC. Next year, this pilot program may be extended to other SMS academic tracks.

For further information about this program, including whether it has been extended to other SMS academic tracks, please visit <http://156.145.78.54/sms/flash/programs.asp?id=13>.

DOCTOR OF PUBLIC HEALTH (DR.P.H.)

A program leading to the Doctor of Public Health degree may be pursued in the department's current areas of research activity and specialization, or in any other area involving study of sociobehavioral aspects of health and public health policy. Training in research methods drawn from public health and the social sciences is emphasized. Following completion of coursework and comprehensive examinations, students complete a dissertation on a problem or issue in the health field of interest to them, using social science theories, concepts, and methods. Graduates of the program will be prepared to enter research and teaching positions in health professional schools or to engage in health research in a variety of settings, including government, hospitals and health care agencies, and health planning and consulting organizations.

Applicants who wish consideration for departmental tuition support must submit their applications by January 1.

DOCTOR OF PHILOSOPHY (PH.D.)

The Sociomedical Sciences Ph.D. program is interdisciplinary, with study divided between the Mailman School of Public Health and one social science department in the Graduate School of Arts and Sciences (Anthropology, Economics, History, Philosophy, Political Science, Sociology, or Psychology). The aim of the program is to train researchers and teachers to apply social science theory and methods to the study of social factors related to health status and health care needs, the social systems, and the relation between these systems and the populations they are designed to serve. Students who enter the program with a bachelor's degree complete a minimum of 60 points; those with a health or social science master's degree may be eligible for advanced standing with a corresponding reduction in course requirements. Following coursework, there may be a language or statistics requirement depending upon the social science in which the student elects to concentrate. All students complete qualifying examinations in their social science area and in methods, health behavior, and health care systems. The dissertation topic, a public health problem or issue of interest to the student, is addressed using social science theories, concepts, and methods. Graduates of the program have typically been employed in academic positions either in social science departments or health professional schools, or have taken positions as analysts or evaluation researchers in health planning agencies or consulting organizations. Further information on admissions and program requirements can be obtained from the Department of Sociomedical Sciences by calling 212-305-1561. Applicants may call 212-854-4737 and may also download a Ph.D. application from its Web site (<http://www.columbia.edu/cu/gsas/download.html>).

Applicants who wish consideration for departmental tuition support must submit their applications by January 1.

Course Descriptions

Note: Many courses require permission of the instructor/department as a prerequisite for enrollment. The semester course schedule issued each term (fall, spring, summer) by the Office of Student Affairs identifies courses that require permission prior to registration.

P6700 Introduction to sociomedical sciences, 3 points.

The sociomedical approach enlists the social sciences of anthropology, sociology, history, political science, social psychology, and moral philosophy in a multidisciplinary study of public health and medicine. Drawing upon assigned readings, lectures, and seminar sections, this course examines critical issues in urban health inequalities—the signature theme of the Department of Sociomedical Sciences—as they have taken shape historically, evolved over time, and assumed distinctive forms in the context of a global economy. Students learn to apply the tools of social science to the analysis and formulation of public health programs and policies. This course is part of the core course requirement for the M.P.H.

P6712 Introduction to health advocacy, 3 points.

This course focuses on the practical aspects of issue advocacy, designed to give the professional in public health an introduction to issue advocacy generally, and an understanding of the critical components of developing and implementing a health advocacy program in particular. Too often, senior executives in the public, private, or nonprofit sector expect that their good works alone are sufficient to gain others' support, maintain funding, or advance a critical policy agenda. Unfortunately, it isn't so. In an age of media oversaturation, rapid technology advances that continually atomize people's attention, and intense competition among interest groups for decision makers' hearts, minds, and budgets, successful health professionals must have issue advocacy in their arsenal of weapons to keep their interests relevant and compelling, to move others to action, or to affect public policy.

P6713 Introduction to clinical medicine and public health, 2 points.

Designed to provide the master's degree student with a general overview of medical diseases and the various organ systems of the human body. Students achieve an understanding of pathophysiology, diagnostic criteria, and treatment approaches to diseases. Emphasis on the relationship of disease and its impact on public health. Covers entities including, but not limited to, infectious diseases (tuberculosis, AIDS), cardiovascular disease, pediatrics, psychiatric illness, alcohol and substance abuse. Students learn basic medical terminology as well as how various disciplines (i.e., nurse, M.D., social worker) work as a team within the hospital organization. Invited speakers as well as field trips to hospital sites. Grade based on final exam and term paper related to the field experience.

P6723 Women and AIDS, 3 points.

Broad overview of the impact of the HIV/AIDS epidemic on women's lives. The magnitude of the infection, prevalence among women, and diversity of the women affected in terms of class, race, ethnicity, age, and personal status are presented. Regional and international differences in distributions, risk factors, and behavioral factors affecting the vulnerability of women to the infection and its consequences, as well as the special clinical and psychosocial manifestation of the disease in women, are discussed. Lecture format with critical discussion encouraged.

P6725 Homelessness: public health and public policy, 3 points.

The changing causes and manifestations of homelessness in 20th-century United States, with particular emphasis on the postwar period. The focus is a double one: analysis of the available data on homelessness in each period is coupled with analysis of contemporary accounts of the problem and proposals to remedy it. The enduring distinction between the deserving and undeserving poor is examined and the changes in the expression of that tradition charted. Historical data, unpublished accounts, archival material, the classics of "skid row" literature, and contemporary reports and research papers furnish the raw material for discussion. The orienting question for each period is: What kind of social problem is homelessness perceived to be (if at all) and what is the evidence offered in support of that view? Students are offered the choice of archival research or policy analysis for their projects.

P6726 Public health and disability policy, 3 points.

A social movement is redefining disability issues in terms of environmental barriers and civil rights; it rejects the "medical model" that accounts for limitations experienced by people with disabilities in terms of their impairments only. Federal legislation reflects both old and new perspectives, creating a generally incoherent "national disability policy." Public health professionals and their institutions have begun to respond to disability activism and to undertake major initiatives—notably, a new chapter on "Healthy People with Disabilities" in *Healthy People 2010*, the document that conveys U.S. public health priorities. This course

examines the dilemmas of national disability policy. Highlights include the chapter noted above; the World Health Organization's new International Classification of Functioning and Disability; the "Americans with Disabilities Act"; recent legislation on disability, work, and health insurance; and research resources, e.g., National Health Interview Survey on Disability.

P6727 Preventive health behavior, 3 points.

Recommended prerequisites: P6400, and P6103 or P6104. *First in the sequence of SMS courses required for all Health Promotion and Disease Prevention track students.* Provides an overview of health promotion and disease prevention in public health. Examines the contribution of health behaviors to morbidity and mortality and introduces students to leading theories of health behavior change. Particular emphasis is placed on assessing the role of community-based health promotion programs in public health. Topics covered include past, current, and future trends in health promotion; the influence of social factors on health behaviors; the use of ecological models in designing health promotion programs; individual-, group-, and community-level theories of health promotion and behavior change; approaches to needs assessment and planning; community collaborations in health promotion; challenges to evaluating community health promotion programs; efficacy of community-level interventions; and the role of *Healthy People 2010* in setting health objectives for the nation.

P6729 Preventive medicine and public health, 3 points.

An overview of the scientific basis of preventive medicine with an emphasis on practical applications in public health. Topics include primary and secondary prevention of cardiovascular disease and cancer, the role of nutrition in health promotion and disease prevention, the report of the U.S. Preventive Services Task Force, and less traditional concerns of preventive medicine such as injuries, violence, suicide, and substance abuse. Future trends in prevention and public health implications are considered. Lectures, invited speakers, discussion. Assigned readings, written assignments, term paper, and class presentation.

P6732 Health promotion and disease prevention seminar series, 1 point.

Primarily for students in the M.P.H. Health Promotion and Disease Prevention track of Sociomedical Sciences, although others are welcome. Presentations focus on practices used in the field of health promotion and ongoing research in the field. Speakers include faculty, invited guests, and post- and predoctoral students. Seminars are cosponsored by the Harlem Center for Health Promotion and Disease Prevention and the NYC Department of Health/School of Public Health Preventive Medicine Residency Program.

P6738 Health promotion at the worksite, 3 points.

Interest in worksite health promotion and disease prevention has grown exponentially in the past two decades, driven both by the desire to improve employees' health and the potential of health promotion programs to slow spiraling health care costs incurred by employers and to improve employees' productivity and morale. *Healthy People 2010*, the nation's prevention agenda, includes several objectives that specifically target worksites, challenging employers to create and expand healthy work environments and facilitate health promotion activities. This course reviews concepts, issues, and methods of promoting healthy lifestyle behaviors in business and industry. Guest speakers, discussions, and assignments illustrate the processes involved in planning, implementing, and evaluating health promotion programs at the worksite.

P6741 Overview of long-term health care services in aging, 3 points.

Provides an overview of community-based and institutional services within the systems of long-term care (LTC), informal supports, and the

role nonprofit consumer organizations can play in articulating deficits in the systems and advocating for change. Emphasis placed on Alzheimer's disease as a prototypical chronic illness in the aging population. Class format includes lectures and discussions by experts in the fields of medicine, research, bioethics, advocacy, law, social work, nursing, and nonprofit organizations. Site visits arranged to community-based and institutional settings.

P6758 Introduction to theory and research on interpersonal violence, 3 points.

Designed for M.P.H. students as an introduction to the definitions, patterns, reactions, and explanations of violence in the United States. Throughout modern history, concerns about violence have often mirrored the emergence and decline of social problems. In the United States, explanations of violence have implicated culture, political economy, social inequality, social class, race, gender, genes, mental illness, drugs, and technology. Course surveys the literatures on etiology, the epidemiology of violence, research methods, and comparative studies, and covers intervention and prevention strategies. Focus on contemporary issues regarding theory and analysis. Assignments include readings, term papers, and class presentations. A final paper analyzing a specific violence problem, proposing a research project, or comparing social science and public health perspectives on violence is required.

P6781 The use of large-scale national health care data sets, 3 points.

An overview of research methodology utilizing major publicly accessible large-scale health care and social demographic data sets, including federal, state, and local level resources. Covered are (1) variable identifications and definitions, (2) record layouts, (3) data set size and analysis restrictions, (4) variable strengths and weaknesses, (5) research protocol submissions required by agencies for access to confidential data, and (6) data handling methods. These data permit a wide range of research questions to be addressed. This is demonstrated through the presentation of current and recently completed research activities and projects under development. The ability to analyze data at levels ranging from the individual patient to the national population could prove to be a valuable skill as students pursue their public health careers and advanced studies.

P6794 Overview of geriatrics and gerontology, 3 points.

Jointly sponsored by the School and the Stroud Center/Center for Geriatrics and Gerontology. Research and practice in geriatrics are reviewed, including the demography and epidemiology of aging as well as biological, social, medical, psychological, and psychiatric factors that influence the aging process; the problems that develop in aging; and the manner of treating and caring for the aged.

P8701 Social dimensions of aging, 3 points.

Provides an examination of social theories of aging, focusing on developmental changes, cultural perspectives, and intergenerational relationships. The aging worker, housing, ageism, and health care for the elderly are addressed. The social construction of the aging experience is also explored through examination of models of psychosocial health in old age and in-depth review of current research investigations focusing on bereavement in the elderly, health status of older adults, long-term care needs, and dependency relationships.

P8702 Child and family policy I, 3 points.

P8712 Child and family policy II, 3 points.

Year-long seminar on child and family policy designed for students who already have some background in U.S. social policy and, preferably, either child development or child policy as well. Team-taught by faculty members from the Schools of Social Work and Public Health and

Teachers College, bringing together health, education, and social work perspectives and involving special guest lecturers for selected sessions. First semester stresses the varying approaches taken to child policy by different social and behavioral sciences (history, sociology, demography, economics, political science, and developmental psychology), family law, as well as a cross-national perspective. Ends with three sessions on social problem situations involving children and their families, addressed from the perspective of different disciplines. Second semester focuses on specific child and family policy domains, the current major research developments in each domain, and the relevant policy debate—again from a multidisciplinary perspective.

P8703 Assessment of health and function in aging, 3 points.

Designed to provide a systematic review of strategies for the assessment and eventual diagnosis of mental, physical, and social problems of older people. Instruments for assessment are reviewed and examined with special attention given to the underlying principles of these instruments in relation to various disorders. Videotapes of interviews with older people are used for developing participants' skills in the use of assessment tools.

P8704 Introduction to medical sociology, 3 points.

Required for all Sociomedical Sciences students; open to others with the instructor's permission. Introduction to selected issues in medical sociology, the application of sociological concepts and methods to the study of health and health care. Topics include social factors in conceptions of health and illness; social factors in relation to health, health-related behavior, and the use of health care services; and social factors in the organization of health care.

P8705 Seminar in evaluation of health programs, 3 points.

Prerequisites: *P6103* or *P6104*; and for all Health Promotion and Disease Prevention (HPDP) track students, *P6727* and *P8772*. Review of the basic principles and methods of evaluation in public health. Critical analysis of existing evaluation studies. Assigned readings, short homework assignments, and exams. Required for all SMS HPDP track students.

P8706 Gender and mental health, 3 points.

Relationship between gender and dimensions of mental health from a sociological perspective. Concepts of gender, sex, gender role, and mental health/illness are reviewed and examined critically. Psychoanalytic, biological, and sociological explanations for the association between gender and forms of psychopathology are evaluated, with particular attention given to the influence of family and work. Required readings, class presentations, and a research paper.

P8707 Sexuality, health issues, and public policy I, 3 points.

How have public health, medicine, and policy addressed sexual/health issues in the past century? This seminar examines historical and contemporary examples of health issues with sexual dimensions (for example, STDs, eugenics, birth control, and sex education) to understand how policy has been formed in this arena. Although public health is frequently called on to address health and policy issues that bear, directly or indirectly, on sexuality and sexual behavior, developing a public health discourse and interventions about such issues has not been simple. The growth of public health efforts paralleled major changes in sexuality and gender in the United States, England, and Europe, as well as increasing social and political mobilizations around sexual issues and problems. The seminar analyzes the complex interplay between empirical data and scientific knowledge, professional and governmental definitions of health problems, and the larger cultural frameworks used to understand sexuality. Quizzes and a term paper.

P8708 Current readings in sexuality and gender, 1 point.

Meets every other week. Participants read, discuss, and critically analyze a selection of new articles and books focusing on sexuality, gender, and health. Readings are drawn from social science and public health, reflecting current issues and controversies in method and theory. Requirements include one presentation and one written analysis. Meets every other week.

P8709 Seminar in sexuality, gender, health, and human rights, 3 points.

Prerequisites: previous coursework or work experience in at least two of the following areas—sexuality, gender, health, and human rights—and instructor's permission. The seminar examines new scholarship on sexuality and explores ways of integrating its theoretical challenges and empirical findings with contemporary work on gender, health, and human rights. Also analyzes new work on sexuality in light of current practical issues raised by policy intervention, public health programs, and grass-roots organizing in many countries and cultures, building on developments evident since the United Nations conferences in Cairo and Beijing, as well as the HIV/AIDS pandemic. Analyzes contemporary case studies and identifies the significant achievements, limitations, and challenges met by programs and advocates attempting to integrate sexuality into rights, health, and gender frameworks in domestic and international settings. Aims to promote dialogue and exchange between academics, activists, and advocates. Response essays and a critical essay are required.

P8710 Sexuality, health issues, and public policy II, 3 points.

Prerequisites: *P8707 Sexuality, health issues, and public policy I*, or equivalent preparation, and instructor's permission. A critical examination of the social, historical, cultural, and scientific factors that influence contemporary policy issues and controversies regarding sexual/health issues. Building on the historical frameworks provided in *P8707*, this seminar analyzes contemporary case studies in order to identify the significant elements in the formulation of policy. Particular emphasis is given to the complex interplay between empirical data and scientific knowledge; professional and governmental definitions of health problems; and the larger cultural frameworks employed to understand sexuality. Quizzes, presentations, and a term paper.

P8711 Women and health, 3 points.

Health issues pertaining to historical and contemporary experiences of women. A review of the conceptualization and measurement of health and illness in social science research and a historical overview of the significance of gender in receiving and providing health care services in the United States. The epidemiology and social and cultural correlates of women's health status, as well as the influence of gender on health behavior, are addressed. Women as health care providers, the medicalization and social transformation from natural biological processes to diseases, and the feminist social and health movement are included. Instructor lectures, guest lectures, and student-led presentations/discussions of assigned readings.

P8713 Critical topics in human sexuality across the life course, 3 points.

Designed to help students: understand the major theories and principles guiding an understanding of human sexuality, as well as recent developments in *sexuality research*; develop an understanding of methodological and assessment issues in the study of sexuality; and become familiar with the extent to which sexuality research and principles inform public health efforts promoting sexual health. Emphasizes a developmental approach to human sexuality across the life course and a biopsychosocial model as a basis for understanding sexuality and health.

P8714 Public health and aging, 3 points.

An overview of the aged population, both in the United States and internationally, and its increasing relevance for public health planning and

policy. Five major topics are covered: (1) "age" in its biologic, demographic, and epidemiologic dimensions; (2) aspects of the health of the aged, evident in assessment of health status, function, cognition, and health service use; (3) the formal, "semiformal," and informal components of long-term care for elders with chronic disease; (4) minority aging; and (5) policy issues related to an aging population. Lectures and guest presentations. Students are required to prepare a class presentation on a set of readings, including a written critique of a paper, complete a midterm exam, and write a final paper on an agreed-upon topic.

P8715 Breast cancer as a public health issue, 3 points.

A multidisciplinary overview of the complexity of breast cancer from the public health perspective. The topics discussed and literature reviewed are drawn from many disciplines, including epidemiology, social science, medicine, research, economics, consumer advocacy, law, ethics, health education, government, insurance, media. Topics address the magnitude of the disease from issues faced jointly by patients, their families, and health care providers. The course combines lectures by faculty and guests and student presentations.

P8716 Controversies in the history of public health and medicine, 3 points.

Introduces students to the classic texts and concepts in the field of history of public health and medicine and explores how these texts have structured specific areas of research. Particular attention to (1) changing historical interpretations; (2) historical methods, quantitative and qualitative; and (3) the use of history in the formation and analysis of public policy. Team-taught by faculty members in the program. Each section is led by two faculty members whose scholarship and current research relate to the historical concepts and methodologies that are the focus of the session.

P8717 Urban space and health, 3 points.

Explores the interrelationship of space and health, particularly in cities. Begins with the thesis, proposed by Jane Jacobs and others, that the system of the city is an engine for economic development, creativity, and civilization. The strength of the engine is a test of the composition of the city, and alterations in the composition of the city can augment its ability to serve as an engine. Hence, people have tinkered with cities from the beginning of time. Sometimes people change cities in ways that make them healthier for their residents—sometimes they make things worse. This process of city change/health change is the explicit focus of this course (1) to ensure that public health practitioners are aware of the changes in the city being made by others, so they can weigh in on potential health effects and (2) to give students of public health some ideas of the ways in which they might themselves tinker with cities to make them more supportive of residents' health.

P8718 Privacy, the state, and epidemic disease: policy conflicts in AIDS and tuberculosis, 3 points.

A critical examination of the ethical and political controversies that have emerged in efforts to control tuberculosis and AIDS. The paradigm of disease prevention that emerged in response to tuberculosis—case finding, case reporting, treatment, and quarantine—are examined in the context of AIDS, where concerns about the right to privacy have been given such salience. Topics considered include screening, reporting by name, criminalization of transmission, discrimination, and access to care. Midterm exam and term paper required.

P8719 Master's essay in sociomedical sciences, 3 points.

Required for M.P.H. students in the Sociomedical Sciences program. The essay should involve research based either on data collected by the student or on secondary analysis of available data. It may develop from a term paper for a course, from a research study, or from independent

study. The Project, an option in place of the essay for students in the Health Promotion/Disease Prevention track, might take the form of a health promotion curriculum, a grant proposal, or strategies for a social marketing campaign. The essay/project requires review by two full-time faculty members from the department.

P8722 Cancer prevention and control: a biobehavioral approach, 3 points.

Engages students in the understanding, development, and testing of biobehavioral intervention models for cancer prevention and control, as well as for survivorship. Major focus is on intervention research in cancer, so a rudimentary knowledge of cancer, as well as theories of behavioral change and epidemiology or social science methodology, is assumed. Students are encouraged to take prerequisite coursework both in health promotion and disease prevention, preferably *P6727 Preventive health behavior*, and *P6400 Principles of epidemiology I*. Joint registration or completion of *P8414 Cancer epidemiology* is preferred.

P8723 Culture, sexuality, and HIV/AIDS, 3 points.

Offers a broad overview of the historical development of social science research on sexuality and sexual health. Divided into three main parts. First section examines early attempts (in the late 19th and early to mid-20th centuries) to develop a science of sexuality capable of providing objective and empirically based understandings of sexuality and sexual behavior as opposed to what were perceived to be the value-laden and moralistic understandings of religious belief or traditional popular culture. Second part focuses on the more contemporary development of social science research on sexuality and sexual health, particularly during the 1960s and '70s (but prior to the HIV/AIDS epidemic), in disciplines such as anthropology, sociology, and social psychology. Finally, third part focuses on the significant changes that have taken place in sexuality research following the emergence of AIDS, exploring the increasing engagement between social science research and public health programming, as well as the constitution of sexual health as a new field of specialization.

P8724 Drugs and society, 3 points.

Seminar in drug abuse as a health and social problem. Historical and cross-cultural perspectives; the concept of addiction; patterns and trends in drug use and abuse—the epidemiology of tobacco, alcohol, heroin, marijuana, and psychotropic drugs; the antecedents and consequences of drug use and abuse—psychosocial perspectives; drug abuse and crime; the social costs of drug abuse; the evaluation of treatment and prevention strategies. Term paper.

P8725 Global AIDS policy, 3 points.

A broad overview of the social, political, and economic factors shaping the global HIV/AIDS epidemic and of the policy responses that the epidemic has generated in different settings. Specific topics include the changing shape (and the changing perception of the shape) of the epidemic in different parts of the world; the factors that structure or influence HIV vulnerability cross-culturally; and the ways in which different sectors, both governmental and nongovernmental, have sought to respond to AIDS in a range of different country settings. Special emphasis is given to the international and intergovernmental response to the epidemic, focusing on the extent to which HIV/AIDS can be understood as a kind of test case in international health, illuminating both the possibilities and the limitations of the international system in responding to perceived health emergencies.

P8726 Tutorial: advanced issues in AIDS research, 1 to 3 points.

Current issues and problems in AIDS research are examined from the perspectives of both the social sciences and the biological sciences.

Students are expected to examine critically and discuss research journal articles in their particular field of study. More than 1 point may be earned by satisfactorily completing a written project (for example, a research paper or grant proposal) on AIDS by the end of the term.

P8729 Organizational and community linkages, 3 points.

Development of the optimal principles by which organizations and communities link to each other. An examination of some of the key issues by which (1) good health practices are communicated to the public (e.g., mass media, indigenous workers, voluntary associations), and (2) health services can be optimally delivered to various health communities (e.g., ethnic, minority, middle-class). One part of the analysis looks at principles of administrative structure (e.g., hospitals, nursing homes, HMOs) to see how they affect the nature of linkages. Another part of the analysis is the conceptualization of the various barriers to effective health communication between organizations and communities. Organizational material draws on health data but includes other areas as well to show the generality of the linkage principles. Midterm and final exams.

P8731 Informal social networks, 3 points.

Indications of the unique role that informal networks play in a modern industrial society as contrasted to formal organizations. Outlines the specific roles played by spouses, kin, friends, neighbors, volunteers, and various other "weak tie" groups. Ideal states of each of these groups are explored along with major variations and their impact on social functioning and health. Midterm and final exams.

P8733 Health-related social movement in comparative perspective, 2 points.

Addresses the role of social movements in making change in public health and medical care. Students acquire the tools with which to analyze systematically the circumstances under which health-related social movements emerge, elements of movement organization and ideology, determinants of movements, relation to the state, and circumstances associated with movement failure and success. Comparative cross-national studies of health-related social movements are used to illuminate the role of the nation-state in shaping opportunities for movements to emerge and the form they take. A seminar course, with substantial outside reading; students are expected to actively participate. Performance is evaluated based on in-class presentations (30 percent), participation in class discussion (20 percent), and a final research paper (50 percent).

P8735 Health communications, social marketing, and the media, 3 points.

Increasingly, communication avenues, such as mass media and the Internet, play an essential role in the public's health perceptions, knowledge, and behaviors. This course introduces students to social marketing theories, audience segmentation concepts, media advocacy techniques, public relations practices, mass media participation, message design and public campaign execution, formative research and evaluation. Lecturers include producers from major networks, writers from the *New York Post* and the *New York Times*, publicists from major PR firms and advertising agencies, leaders from the Ad Council, and officials from local nonprofit and NYC Health Department media campaigns. In addition to lectures, student groups compete to design a social marketing campaign around a public health issue of current importance.

P8736 Theories and perspectives on sexuality and health, 3 points.

Examines basic theoretical perspectives on sexuality relevant for the understanding of public health issues and enlists the social sciences of sociology, psychology, anthropology, history, political science, and moral philosophy. Drawing upon assigned readings, lectures, seminar sections, and individual assignments, students learn to explain the strengths and

limitations of relevant theoretical perspectives for understanding public health issues related to sexuality and to analyze linkages between sexuality and health across populations and in minority and stigmatized communities. A required course for the M.P.H. Sexuality and Health track.

P8738 Seminar on gay and lesbian issues in public health, 3 points.

Provides theoretical and methodological tools for conducting public health research, designing public health interventions, or developing health programs for lesbian and gay populations. Addresses theory as well as conceptual and methodological research issues. Topics include the social construction of homosexuality; lesbian/gay world and culture; methodological problems in research on gay and lesbian populations; the social psychology of prejudice, stigma, and stereotyping; homophobia and heterosexism; antigay violence; gay/lesbian identity development; lesbian/gay families; psychosocial impact of AIDS on the lesbian/gay community; health effect of prejudice and stigmatization; lesbian health and illness; availability and utilization of health services by lesbian and gay populations. Methodological topics include defining a population of lesbians and gay men; sampling problems; the effect of bias in lesbian/gay research on internal validity and generalizability of research results.

P8740 History of epidemiology, 3 points.

An overview of the development of epidemiology since the early 19th century. Addresses questions such as: why is the study of the history of epidemiology relevant for a thorough understanding of contemporary epidemiology and public health? How do demographic, biological, technological, sociocultural, economic, and political factors influence the problems that epidemiologists study and the methods they employ? Students who successfully complete the course are able to examine such questions systematically and critically, using a historical approach. Short lectures and seminar discussions in which students take an active role. Students are responsible for a substantial amount of reading each week, one short (5-page) paper, and one major term paper (20–25 pages).

P8741 Globalization, social movements, and community health, 3 points.

Offers a broad overview of the most important social, cultural, political, and economic transformations taking place at the end of the 20th century and the beginning of the 21st century, and explores the implications of these changes for community health in major urban centers in the United States as well as internationally. Focuses on the multiple dimensions of globalization as well as the impact of globalization on the development of new social movements at the community level. Examines the ways in which processes associated with globalization, such as growing disparities in income distribution and the disappearance of work for major sectors of the urban population, have impacted upon community health problems. Explores the possibilities for community mobilization, advocacy, and activism within this broader social context and assesses the extent to which community health might be conceptualized as an issue of social justice within the contemporary global system.

P8743 Coping with chronic illness and disability, 3 points.

Reviews models of coping and psychosocial adaptation to chronic illness and disability. Focus is on understanding of adaptive tasks (e.g., identity reconstruction, stigma management, adherence to treatment regimens, symptom management) posed by these conditions and the various coping strategies individuals employ in an effort to master these tasks. Factors (e.g., sociocultural beliefs, illness representations or schema, social support) that influence individuals' accommodation to chronic illness and disability are examined. Opportunities for stress-related growth and benefit finding among those living with chronic illness are also examined. Strong emphasis on understanding patients' perspectives on their "lived" experience with chronic illness.

P8744 Caregiving in chronic illness: psychosocial perspectives, 3 points.

Examines the care provision role of the family and the primary network in contemporary society, tracing the historical, developmental, and economic changes in the informal care. Analytic and empirical insights on care provision in chronic diseases of adulthood such as Alzheimer's/dementia, cancer, and AIDS/HIV are discussed. Theoretical models of informal caregiving are presented, illustrated with in-depth case analysis.

P8745 Social and economic determinants of health, 3 points.

Prerequisite: P6700 or P8704. Examination of research on disparities in health and illness related to social and economic inequality in the United States. Lectures and readings review theoretical and empirical research on factors linked to class, income, and education differences that have been hypothesized to explain the generally poorer health and higher rates of mortality among members of lower socioeconomic groups. Includes concepts and measurement of health and social stratification, assessment of evidence for proposed links between socioeconomic position and health through group differences in health beliefs, health behaviors, exposure to social stress, occupational hazards and employment instability, and access and utilization of medical care services. Also reviewed are policy initiatives aimed at narrowing health disparities between different socioeconomic groups. Midterm exam and a take-home final exam.

P8747 Health promotion, disease prevention, and the state: ethical and political controversies in public health, 3 points.

Public health policy is always the product of controversy. Most typically, such conflicts are played out in terms of a clash among scientific considerations. But even when not explicit, the controversies entail political tensions and ethical concerns. This course examines the political and ethical dimensions of public health policy focusing on issues of justice and liberty in four domains of public health: the prevention of diseases associated with personal behavior, protection against occupational hazard, epidemic control, and access to health care. Midterm exam, term paper, and two short critiques.

P8748 Public health and the street economy, 3 points.

This course utilizes a diverse range of readings to investigate the linkages between the street economy and public health issues. Readings are based upon ethnographic and qualitative research undertaken by anthropologists and sociologists who present thickly contextualized aspects of the street economy. Cities are the locus of many significant public health concerns, such as infectious diseases, substance abuse, mental health problems, homelessness, and violence. Epidemiological research indicates that public health issues frequently intersect, such as substance use and HIV infection; while anthropological and sociological research demonstrate that these intersections often occur within a context—notably, street-based exchanges—which we call the "street economy." The street economy is a sphere of informal social and economic activity (often illegal) occurring or originating on city streets, such as drug dealing, panhandling, and sex work solicitations, which frequently poses health risks for its participants. Students are able to exercise the following skills at the conclusion of the course: (1) describe the principal theoretical and material features of the street economy; (2) analyze the linkages between the street economy and urban public health issues; and (3) critically examine the institutions designed to assist individuals engaged in the street economy. Taught using a traditional lecture and class discussion format. Grades based upon two exams, a term paper, and class participation.

P8749 Immigrant health, 3 points.

An introduction to issues associated with immigrant health. A brief historical overview of immigrant health in the United States. The focus

is primarily on current immigrant populations in the United States and New York City, and the challenges to providing health care. A general approach to issues on immigrant health is utilized. Addresses such topics as immigrant status (i.e., documented, undocumented, refugee, migrant) and health cultural influences in health outcomes, acculturation/assimilation (stress), access to health care, and multicultural approaches to health promotion.

P8750 Urban space and health, 3 points.

Urban areas worldwide are typically home to various racial/ethnic groups. Conflicts among these groups not only have an extremely important impact on the quality of life of the city's residents, they often have important public health impacts. Health disparities between members of different racial ethnic groups have increasingly become major policy concerns, and understanding how race/ethnicity influences health behavior are core topics for discussion, study, and review in this course.

P8751 Population aging and public policy in developing countries, 3 points.

Offers an opportunity to students, both from the developed and developing countries, to acquire knowledge and understanding of rapidly changing age structures, its consequences on economic and social policies, and the conditions of older persons. Each student is expected to prepare a substantive paper on a selected aspect of population aging in a particular developing country or a subregion of developing countries—in light of the UN estimate that by 2050 there will be two billion persons aged 60 years and over, and that about 80 percent of them will be living in developing countries.

P8753 Current issues in Latino health, 3 points.

Prerequisite: P8767 or the instructor's permission. Provides an overview of selected current research issues concerning the mental and physical health of Latino populations in the United States. Topics addressed include the heterogeneity of Latino groups, health behavior theories, acculturation and identity theory, immigration, HIV/AIDS, cancer, coping, social support, and psychosocial adaptation to chronic illness. Emphasis is placed on analyzing dominant theories in health psychology and behavioral medicine and discussing their applicability (if any) to the health of Latinos. Upon completion of the course, students are able to (1) describe the health status and sociodemographic profiles of Latino groups in the United States, (2) discuss major theoretical paradigms in Latino mental and physical health, and identify gaps in the literature, and (3) explain the significance of social, behavioral, and cultural factors contributing to the mental and physical health of Latino populations in the United States. Seminar format: class discussions of assigned readings. Two papers are required.

P8754 Public health decline in Harlem, 1950–1990, 3 points.

Focus on the synergism of housing destruction and public health decline that drove community disintegration in Harlem during the latter half of the 20th century using vital statistics, census data, police and fire records, secondary histories, oral histories, and newspaper, magazine, and scientific journal articles. Employs both qualitative and quantitative methodology. Vital statistics, census data, police and fire records, secondary histories, oral histories, and newspaper, magazine, and scientific journal articles are used. Slides and field trips augment lectures. Students are evaluated based upon class participation and attendance, and a thirty-page paper, written in an iterative process to ensure that students receive adequate feedback, in particular methodological support.

P8755 Introduction to medical anthropology, 3 points.

Required for all Sociomedical Sciences students; open to others with the instructor's permission. Overview of medical anthropology, the examination

of health, disease, and medicine in the context of human culture. Emphasis on cross-cultural data and comparative method. Topics include ecological influence on health and disease; adaptation; subsistence and social structure; medical systems and theories; curing, patients, and healers; diagnosis and divination; cognition; acculturation and social change. Lecture format with critical discussion encouraged. Exam.

P8756 Tobacco control in the United States: the legal, ethical, and policy debates, 3 points.

Explores the ethical, legal, and scientific debates that have accompanied the development of U.S. tobacco control policies. After reviewing the history of tobacco and cigarette smoking in the United States, the course examines four broad areas of tobacco control: restrictions on advertising, regulation of smoking in public spaces, taxes on tobacco products, and litigation. Concludes with a brief look at tobacco control in international contexts.

P8757 Current readings in medical anthropology, 1 point.

Meets every other week. Participants read, discuss, and critically analyze a selection of new articles and books focusing on culture and health.

Readings focus on ethnography, theory, method, and policy, reflecting current issues and controversies. Requirements include one presentation and one written analysis.

P8758 Advanced seminar on theory and research on interpersonal violence, 3 points.

For doctoral students only. Interpersonal violence is a recurring political and social problem that has commanded scientific and cultural interest. Societal and scientific concerns about violence tend to mirror the emergence and decline of social problems such as family violence, sexual violence, "street" crimes, gang violence, homicide, and state violence. In the United States, explanations of violence have implicated culture, political economy, social inequality or social class, race, firearms, hormones or genes, mental illness, alcohol and drugs, and technology. Efforts to estimate the costs of violence or predict its occurrence have raised critical questions about how we define, measure, and explain it. Despite nearly fifty years of scientific study, our knowledge of violence is incomplete, as is our ability to prevent or control it. The goal is to train students in the definitions, patterns, and explanations of interpersonal violence, and on contemporary methods of violence research. Literature on the epidemiology of violence, research methods, comparative studies, and several levels of explanation and theory are surveyed. Readings are drawn from the several disciplines concerned with violence prevention and control. Students become conversant with the contemporary issues in theory and research on violence, and apply their knowledge in developing a scholarly analysis of a topic in violence.

P8759 Tobacco seminar series: an unfiltered view, 1 point.

A stepping-stone to further study and training in the development, implementation, and evaluation of science-based, multilevel interventions for tobacco control in partnership with priority population communities and state/local health departments. Tobacco control is a model for interdisciplinary study in public health, linking various areas such as law, community organizations, medical and dental communities, counteradvertising strategies, youth prevention, taxation, and regulatory policy. This course develops knowledge and skill base in its participants for addressing tobacco control issues and conceptualizing new models of research and practice.

P8760 Medical anthropology: advanced seminar, 3 points.

Prerequisite: P8755 or equivalent coursework or experience. Selected reading and analysis of recent work in medical anthropology, with emphasis on complex society: the relationship between health, illness, and the larger cultural context; and the use of qualitative and quantitative

methods. Focus on new developments in theory and method. Seminar format with discussion and student commentaries. Term paper developed through student-instructor consultation.

P8763 Stress, identity, and health, 3 points.

An advanced seminar course that engages students in critically examining the theoretical principles, conceptual issues, and empirical findings related to sociological and social psychological research in stress, identity, and health. Students analyze the impact of self and identity on the relationship of stress and health, and generate principles that describe the stress processes in various minority groups. They compare and contrast stress processes related to prejudice among various socially disadvantaged groups, differentiating between structural and individual sources of stress, and explain coping and social support processes among minority groups and their impact on health. By the conclusion of the seminar, students are able to apply concepts on stress, identity, and health to the development of original research and communicate in written and oral form a synthesis of theory and research on stress, identity, and health on public health problems.

P8765 Decision analysis: making decisions in public health and medicine, 3 points.

Prerequisite: an introductory course in probability and statistics; introductory economics is recommended but not required. The rapid accumulation of public health and clinical information makes decisions in public health and medicine increasingly difficult. Decision science provides rigorous methods for organizing complex problems into an analyzable framework as a basis for decision making. In the public health arena, decision analysis is now applied to everything from clinical decisions facing individuals and their doctors, to public health decisions affecting populations, to environmental health decisions impacting current and future generations. Decision sciences have sought to bring together all the relevant facts, the best available evidence—and even our values and feelings—to evaluate the probabilities of risks and the consequences of those risks. This course is designed to introduce the student to the methods and range of applications of decision analysis in health care technology assessment, medical decision making, and health resource allocation.

P8767 Health psychology and public health, 3 points.

Required for Sociomedical Sciences students; open to others with instructor's permission. Introduces conceptual and theoretical issues and research methods in the social psychological study of health. Students are introduced to the field of health psychology and review convergences and distinctions from public health. Focuses on the tension between individual (micro) and social environmental (macro) perspectives. Specific areas of study include: mind/body and health, conceptual issues and evidence for pathophysiological paths between the nervous system and the endocrine and immune systems; stress in disease etiology; personality in disease etiology; ameliorating factors in stress, such as coping, resilient personality, and social support; the psychology of illness processes, such as doctor-patient interaction, and coping with disease; theoretical models of health promotion and disease prevention; and incorporating a biopsychosocial model of health and illness. Case studies of these issues throughout the course focus on environmental health issues, women's health, and HIV/AIDS.

P8772 Planning and implementation of health promotion programs, 3 points.

Prerequisites: Biostatistics and Epidemiology core courses and P6727 *Preventive health behavior*, and instructor's permission. Students learn strategies for planning health promotion programs and apply them in a real or hypothetical community of their choice. Needs assessments focus

groups and other formative research methods are used to develop theory-driven behavior change interventions at the individual, provider, and community levels. Assists students in their practicum setting to apply principles of health promotion planning and implementation to a real-world context; thus, students are encouraged to take the course while completing their practicum requirement. All students develop a health promotion program over the course of the semester and describe it in detail in a final paper. Learning activities include lectures, classroom group assignments, responding to and participating in Bulletin Board Assignments. Required for all SMS Health Promotion and Disease Prevention track students.

P8773 A social history of American public health, 3 points.

Provides students with a historical understanding of the role public health practice played in American history during the 19th and 20th centuries. First, focus is on the social and biological environment and the creation of conditions for 19th-century epidemics of cholera, typhoid, yellow fever, and other epidemic diseases. Second, the course traces the changing urban and industrial infrastructure and their relationship to late 19th- and 20th-century concerns about tuberculosis, industrial illness, and infection. Third, public health practice and campaigns are traced, looking at the ways that social attitudes toward the industrial worker, the immigrant, and the urban environment shaped the field. The class then looks at the boundaries between public health and medical practice, and raises questions about their shifting definitions. As lecture topics indicate, the course emphasizes that public health is intimately related to broader social, political, as well as scientific changes overtaking the country and incorporates a very broad range of subjects from changes in urban living and culture through the transformation of the industrial workplace. Active participation in discussions and a research paper are required.

P8774 Introduction to sociomedical sciences research methods, 3 points.

Provides an overview of the fundamental concepts and components of research methodology as used for social science investigation of public health issues. Focus: to acquaint students with quantitative and qualitative research methods and when each is appropriate, different types of research designs, development of data collection instruments, data collection techniques, and the statistical analysis of data. Students gain an appreciation of all components involved in sound public health research. Lectures, discussion sessions, and practical exercises. Students must attend all class sessions. Grades based on class participation, class quizzes, and final research report.

P8775 Qualitative research methods I, 3 points.

Survey of methods employed in qualitative research. For each of the methods of interest, examines the technical problems of data collection, the kinds of data that are collected, and the strategies for data analysis. Major emphasis on understanding the rationale for selecting a particular method of qualitative research to answer a specific research question. Methods discussed include direct observation in field settings, focus groups, individual life story interviews, family and group interviews, historical analysis, and literary analysis.

P8777 Survey research methods, 3 points.

Overview of methods in survey research. Includes defining the aims of a survey, sampling, question wording and designing the survey instrument, methods of data collection (including face-to-face and telephone interviewing and mail questionnaire), entry of data, elementary data analysis, and writing the report. The organization of survey research, its uses, and ethical issues are also discussed. Student exercises emphasize learning of practical skills.

P8780 Community health development: linking services, training, research, and activism, 3 points.

Draws on the instructor's work around inter- and intra-agency system building efforts and linkages between an academic center and community-based agencies and networks in high-risk neighborhoods. The confluence of poverty, AIDS, tuberculosis, substance abuse, and violence in our inner-city neighborhoods makes them key sites for studying the underlying causes of disease and approaches to their prevention and management. East Harlem, the predominantly Latino and black inner-city neighborhood served by the Mount Sinai Medical Center, provides such a strategic setting. Objectives: to (1) provide theoretical underpinnings re community development; (2) operationalize the blueprint by enumerating the corollaries to this framework and demonstrating how they have been applied over the past six years; (3) identify and explore social science methods.

P8781 Critical analysis: a sociomedical sciences journal club, 1 point.

Offered every other week. Develops skills to critically analyze journal research articles and the studies on which they are based. Students critically review journal articles in their area of interest from an approved journal source list. Specific learning objectives are to gain familiarity with journals across various disciplines relating to health behavior and health care needs and services; to identify the strengths and weaknesses of research studies by critically analyzing journal articles, specifically focusing on (1) sampling design, (2) conceptualization and measurement, (3) instrumentation, (4) reliability and validity issues, and (5) limits of generalizability; and to experience the usefulness of regular journal reading. Using a roundtable format, each session focuses on two journal articles selected by students. On a rotating basis, students present a summary and a methodological critique of their selected journal article followed by class discussion of the analysis. Requirements include oral presentation of the student's critical review of their selected journal article, attendance, participation in discussions, and a final written report, incorporating class critiques of the critical review presented orally.

P8785 Qualitative research design in public health, 3 points.

Focuses on the principles and practices of designing social science research in public health, particularly using qualitative methodology. New issues for public health indicate a growing need for applied research, and social science research has become particularly important in the field of health promotion and in policy formation, evaluation, and outcomes measurement. As a consequence, developing research agendas and undertaking research proposal assessment is becoming an important aspect of many health professionals' work. Principal research design concerns included in the course are selecting a research topic; developing and clarifying specific research aims and purposes; selecting populations or target groups to be involved in the research; identifying audiences; assessing resources; nominating research outcomes and applications; project planning and data management; dissemination of findings. Key issues discussed include capacities and objectives of qualitative social research; multimethod research; and the relationship between difficult health problems and feasible research projects, including collaboration with affected communities. Students begin to develop their own research proposals during the course in preparation for subsequent intensive methods training in the second course in the sequence—*P8786 Ethnographic methods in health research*. The course utilizes case studies in qualitative research, particularly from the HIV/AIDS, sexual health, and related fields.

P8786 Ethnographic methods in health research, 3 points.

Offers advanced training in the use of ethnographic methods in health research. Explores a range of different qualitative research methods, including participant observation, in-depth interviewing, oral histories, life histories, and case studies, and examines the ways in which these

methods can be employed in developing ethnographic studies. Readings draw on different methodological texts and guidelines, as well as a range of published ethnographic studies of different health issues in order to illustrate the use of different approaches. Students are also expected to carry out hands-on observation and interviewing on a regular basis, and receive feedback from the instructor and other class participants on field notes, analysis, and interpretation of ethnographic data.

P8791 Tutorial: self-help alternatives to biomedical therapies, 1 to 3 points.

Hypnosis, relaxation, biofeedback, meditation, and other noninvasive behavioral therapies have been used to control and/or terminate stress-based illness and self-destructive behaviors, e.g., hypertension and cardiovascular disease, surgical pain, headaches, smoking, and overeating. A one- or two-term tutorial with goals of (1) reviewing the psychological, sociological, and anthropological aspects of these alternative therapies; (2) identifying commonalities and differences; (3) developing research strategies for exploring the clinical and preventive use of these therapeutic modalities.

P8793 Social and policy implications of bioterrorism, 3 points.

Designed to explore the social and policy implications of bioterrorism. Examines bioterrorism from historical and cultural perspectives, with the objective of understanding the impact of bioterrorism on public health. Also explores the effect of bioterrorist events on public health policy. Integrates aspects of bioterrorism in a broad social context, with the faculty providing an interdisciplinary approach to the subject. Specific topics explored include overview and definition of bioterrorism and biological warfare, history of biological warfare, current bioterrorist threats and attacks, management of bioterrorist attacks, including risk communication strategies, and the impact of bioterrorism on community health, including communities at risk (i.e., medically underserved, aging, homeless, chronically ill, etc.), and the role of the public health community in the prevention and management of bioterrorism. Source materials include a wide range of publications, including several reference materials. Participation in class discussions on the topics assigned each week.

P8796 Tutorial: review of issues and research in the sociodental field, 1 to 3 points.

Review of content areas in research with critical issues selected broadly from the sociodental field; evaluation of existing knowledge. Topic areas include sociodental epidemiology; indicators of psychosocial impact of dental conditions; oral health behavior, including utilization and preventive dental behavior; patient attitudes and compliance; dental health education; dental manpower; dental care delivery systems. Guided readings and discussions or development of research project. In selecting readings, emphasis is on works involving empirical data, social psychological factors, or using sociomedical research approach.

P8797 Tutorial: review of issues and research on compliance with therapeutic and preventive regimens, 1 to 3 points.

Readings and discussion of development of research project. Topics include concepts and methods in defining and measuring compliance, determinants of compliance, and strategies for improving compliance. Regimens refer to taking of medications; keeping appointments; carrying out preventive oral home care practices; dietary and other lifestyle changes—smoking, drinking, exercise—recommended for disease prevention and health promotion.

P8799 Research grant proposal writing, 3 points.

In-depth workshop designed to give advanced students an opportunity to prepare their own fundable research proposal. Each week students are introduced to a different step in the research grant application process using the National Institutes of Health (NIH) format. In addition, each

student becomes knowledgeable about specific program initiatives and priorities, the grant mechanisms relevant at each stage of a typical research career, and the importance of team playing in large research projects. They also learn the importance of developing relationships with project officers and how the NIH peer review process works. The class uses a similar process to constructively critique and rate one another's completed research proposals.

P9740 History and policy: the uses of history, 3 points.

Prerequisites: *P8716* and *P8773* and *History G8732 The social history of American medicine*. Considers the intersection of history and policy. Using a variety of case studies, students learn to identify the different ways history is used and abused in the policy arena. Each case study underscores the ways in which history shapes and is shaped by policy. In exploring this dynamic link between history and policy, students learn to use history to comment on policy and to use current policy dilemmas to rethink history.

P9775 Qualitative research methods II, 3 points.

Continuation of the fall semester, *P8775 Qualitative research methods I* (Course I). Course II introduces the student to the range and application of qualitative methods available for research. In addition to readings and lectures, students design and complete an individual project that includes data collection, analyses, and report writing. Some students express an interest in refining their skills in this area. This course addresses that need by providing an opportunity for students to work on challenging projects and to extend their knowledge of research methods.

P9779 Advanced research methods and analysis, 3 points.

An advanced methods seminar for doctoral students in public health and the social sciences. The course objective is to provide students with instruction and hands-on experience in applying methods of quantitative analysis to research problems in social sciences with an emphasis on public health, health care, and health behaviors. Topics covered include formulation of research questions and hypotheses, issues in complex sample design, measurement of variables, and specification and estimation of single equations and systems of simultaneous equations to model casual relationships. Combines didactic lectures and active participation of students in computer labs and class presentations. Requirements center on analysis of a single database provided by instructors. Students devise a research study and work in small groups to investigate the problem with the class database.

P9780 Sociomedical sciences doctoral research seminar, 3 points.

Required for all Sociomedical Sciences doctoral students. Seminar provides a regular opportunity for critical discussion of doctoral dissertation research, from conceptualization through design, data collection, data analysis, and implications.

P6790, P8790, P9790 Tutorials in sociomedical sciences, 1 to 3 points.

Primarily for students who wish to acquire further knowledge and research skills in areas of special interest. Individual or small-group reading tutorials or guided independent research.

Also:

Offered through the Department of History, Graduate School of Arts and Sciences:

History G8732 The social history of American medicine, 3 points.

The aim is to explore major themes, approaches, and interpretations of the history of medicine, with particular attention to the impact of culture upon medicine and medicine upon culture. Focus is on the United States in the 19th and 20th centuries, with frequent references to European developments.

Offered through the School of Architecture, Planning, and Preservation:

PLA4319 Introduction to environmental planning, 3 points.

Aims to provide an introduction to the ideas and information necessary to integrate environmental viability and sustainable development with other primary concerns of urban planners, namely, equity, healthy communities, and economic development. Explores the historical roots of current trends in environmental planning; examines theories that have developed recently to encourage the restructuring and redesign of land-use patterns, environmental regulation, and systems of production; and reviews the status of some of the basic methods and processes of environmental planning. These topics are discussed in terms of two practice areas: environmental management (policy and regulatory decisions) and environmental planning (including land-use planning and facility siting). The focus is on providing an overview of the major concepts, actors, methods, and policies used in the decision-making context, while emphasizing practical considerations and local examples.

PLA4540 Urban environmental planning, 3 points.

In order to revive joint urban planning and public health efforts in the 21st century, urban planners will need a basis of knowledge in the theories, concepts, and methods of population health. Likewise, as the world population becomes increasingly urban, there will be a growing need for public health researchers and practitioners to understand and incorporate the theories, concepts, and methods of the urban planning profession in order to ensure that communities are planned and built to be more equitable, sustainable, and ultimately, healthier for all. The goal of *Urban environmental planning* is to provide the ideas and information necessary to integrate environmental viability and sustainable development with other primary concerns of urban planners and public health practitioners, namely, social justice, environmental integrity, and health for all.

Offered through the Law School:

Law L6427 Law and social science, 3 points.

Examines the influence of social science research on procedure, evidence, and substantive legal areas, as well as the interactions of substantive law, legal analysis, social science findings, and social science method. First, we briefly review the origins of the use of social science in law, concluding with recent developments such as Daubert. Next, we consider the critical elements of social science research. We consider the complex issues that arise when social science is used to determine facts, to make or change laws, and to establish a context or framework for deciding specific cases. Finally, we review how social science can be used in planning litigation. Included are case studies of specific substantive areas of the law, case studies of the uses of social science methods to establish evidence, and case presentations. Grades based on student presentation of applications of social science in the law and a final paper.

Law L9041 Seminar in criminology, 2 points.

There are important questions that need to be answered as to how the criminal law should be structured and the role that criminal law and social policy should play in society's response to antisocial behavior. The seminar examines various theories of crime, from the "classical" criminology of the 1970s, exploring their philosophical assumptions, their policy implications for the criminal law, empirical studies and findings that arguably support or refute them, and their leading contemporary exponents. Both general and specific crime problems are discussed, including contemporary issues such as homicide, drug crimes, and family violence.

Resources for Study

The Mailman School of Public Health is committed to providing a broad, comprehensive learning opportunity for its students. Students have access to the full scholarly resources of the University as well as applied applications, through research and service centers that infuse cutting-edge practices into the academic program. Some of the most utilized resources by MSPH students are described below.

Libraries

Columbia University Libraries, one of the nation's largest academic library systems with holdings of more than 7.5 million volumes, is one of the world's great research libraries and one of the University's strongest assets.

HEALTH SCIENCES CAMPUS

August C. Long Health Sciences Library
701 West 168th Street
212-305-3605
<http://cpmcnet.columbia.edu/library>

The Augustus C. Long Health Sciences Library serves Columbia University's Schools of Medicine, Dental and Oral Surgery, Nursing, and Public Health; the Presbyterian Hospital; and other health care, instructional, and research programs in the Columbia Presbyterian Medical Center. Founded in 1912, the library is one of the largest academic health sciences libraries in the country. Its collection includes over 500,000 volumes; 4,400 current periodical subscriptions; and extensive holdings of media, electronic resources, rare books, and archival materials.

The library is a unit of the Office of Scholarly Resources and it supports a growing collection of electronic resources, including full-text electronic journals, sophisticated indexes, and electronically accessible reference resources. Classes are taught on the use of electronic materials and the Internet frequently throughout the year. A full-service photocopy center provides high-volume color copying, and the Center for Academic Information Technology (CAIT) offers self-scanning and has over 4,000 CD-ROMs.

The library's Archives and Special Collections holds unique and rare materials documenting the history of medicine and the history of Columbia Presbyterian Medical Center. The noteworthy collections include the Auchincloss Florence Nightingale Collection, the Sigmund Freud Library, and the Jerome P. Webster Library of Plastic Surgery.

CAIT maintains three public access computer facilities, in the library and the Learning Center. They are equipped with both Macintosh and IBM-compatible computers and software for word processing, data analysis, instruction, and other computing applications.

Services available on the four floors of the library include circulation and reserve, reference services, individual consulting, interlibrary loans, photocopying, and faxing, all in a comfortable setting conducive to individual or group study. The space includes group study and conference rooms, individual carrels, an e-lounge, a 24-hour study room with computers, and a leisure-reading lounge. Columbia students activate free, limited e-mail service through Academic Information Systems (AcIS), which gives access to the extensive electronic resources at Columbia University and the Internet.

The New York State Psychiatric Institute Research Library, on Columbia's Health Sciences campus, is a major resource for psychiatry, psychoanalysis, and clinical psychology. In addition, it has strong collections in cognitive and experimental psychology, neuroscience, child psychiatry and psychology, and statistics. The collection includes 15,000 volumes and 400 periodicals. Computerized literature searches, a heavily used service, provide access to a number of customized clearinghouse organization resources.

MORNINGSIDE CAMPUS

The Libraries on the Morningside campus, at 116th Street and Broadway, consist of some twenty libraries, many private collections, and affiliated institutions, plus extensive electronic resources. The library staff and the AcIS staff assist the students, faculty, and staff of the University to explore the large and complex University information environment. In addition to the circulation, reference, and reserves in campus and affiliate libraries, library services include 24-hour study hall and computer labs; electronic access to LibraryWeb; catalogs; CLIO; and off-campus resources including METRO, the New York Public Library, the Research Libraries Group, and the Center for Research Libraries. A directory of and links to Columbia libraries and affiliated libraries is available through LibraryWeb at <http://www.columbia.edu/cu/web/>.

Research Centers

The research goal of the School is to conduct research on key public health issues confronting individuals and populations, and to inform and influence policy debates and decision making on these issues. The School's research efforts concentrate on carrying out a full range of biomedical, epidemiologic, social science, and health policy issues that affect the health of the public, in an atmosphere conducive to increasing levels and quality of both basic and applied research. The School's research program is structured around the conceptual and programmatic interests of individual faculty and collaborative groups of faculty, within the School and the University. On the Health Sciences campus, the School is engaged in collaborative research, including joint ventures and jointly funded projects with the following: the Departments of Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry, Surgery, and Pharmacology; the HIV Center; the Herbert Irving Comprehensive Cancer Center; the

Gertrude H. Sergievsky Center; the Institute of Human Nutrition; the Schools of Nursing, and Dental and Oral Surgery; and NewYork-Presbyterian Hospital. The School also has active collaborations with units of the University on the Morningside campus, including the Departments of Statistics, Anthropology, Economics, History, Philosophy, Political Science, Sociology, and Psychology; the Schools of Law, Social Work, Business, and International and Public Affairs; and The Earth Institute at Columbia University. In addition, the School's National Center for Children in Poverty is one of the three founding centers of the Columbia Institute for Child and Family Policy.

Students are actively involved with faculty on many of the most important research projects of the School. Numerous opportunities exist for students to participate in ongoing research.

Students in the Ph.D. and Dr.P.H. programs are required to undertake research for their dissertations. Under the guidance of faculty advisors, doctoral students select research topics in their own area of special interest. In many instances, doctoral dissertations are based on a component of a larger existing or ongoing research project being carried out by a faculty member. By taking advantage of such a project, students can often have access to more data than would be the case in an entirely independent project, while still having responsibility for a significant element of the project. In other instances, for students who are employed in a public health setting while seeking an advanced degree, the dissertation data may emanate from their place of employment. Such projects usually benefit both the student and the agency at which the research is being carried out.

For M.P.H. students, the research environment of the School exposes them to a faculty who are at the cutting edge of their disciplines and encourages students to participate in the application of new knowledge to public health problems. M.P.H. students, because of the heavy demands of their coursework, their greater practice orientation, and their relatively shorter tenure at the School, tend to have somewhat less intense involvement in research than doctoral students. Nevertheless, many opportunities for direct research experience through assistantships, tutorials, and volunteer work also exist for these students, and the vast majority takes advantage of the opportunities.

Research centers affiliated with departments of MSPH are introduced in the pages that follow.

CENTER FOR APPLIED PUBLIC HEALTH

The Center for Applied Public Health is an important resource for students interested in health promotion and disease prevention. Master's and doctoral students have had the opportunity to gain valuable hands-on experience through the center, developing skills in the design, implementation, and evaluation of public health programs. In the past, there have been opportunities for students to work with faculty on current projects as graduate research assistants, as well as for M.P.H. students to develop practicum projects

through the center. Faculty associates of the center have been involved in developing and evaluating innovative programs confronting many of the most important public health problems facing the nation today, including HIV/AIDS, sexually transmitted diseases, tobacco control, homelessness, and improving the delivery of health services. The center's newest initiatives emphasize the development of partnerships with communities experiencing significant health disparities to develop, implement, and evaluate community-driven programs to promote health and prevent disease. Additionally, the center has sponsored seminar series, bringing public health experts to present their current work. This enables students and faculty to engage with current public health issues and with public health researchers and practitioners. More information is available at <http://www.mailman.hs.columbia.edu/caph/index.html>.

COLUMBIA CENTER FOR CHILDREN'S ENVIRONMENTAL HEALTH

The Columbia Center for Children's Environmental Health (CCCEH) was founded in 1998 when it was awarded the distinct status of becoming one of eight "Centers for Children's Environmental Health and Disease Prevention," established jointly by the National Institute of Environmental Health Sciences and the Environmental Protection Agency. Established to study the effects of various environmental pollutants on children's health, CCCEH is currently conducting two major studies in New York City: (1) the Mothers & Newborns Study, which aims to identify the health effects of exposure to environmental hazards on a cohort of over 700 Dominican and African-American mothers residing in Washington Heights, Harlem, and the South Bronx, and their newborns, who are being followed prospectively through age 5; and (2) the World Trade Center Pregnancy Study, assessing the in utero growth and development of children whose mothers were exposed to airborne pollutants released by the World Trade Center destruction and months of ensuing fires. A third study is centered in the densely populated, heavily industrialized urban area of Krakow, Poland, and a fourth research project is in Chongqing, China. This novel approach uses biomarkers (molecular changes that can be detected in blood or urine) to gauge the mothers' and children's exposures (pre- and postnatally) to environmental pollutants. The pollutants include diesel exhaust (DEP); polycyclic aromatic hydrocarbons (PAH); fine particulate matter (PM_{2.5}) from vehicular traffic and industry; environmental tobacco smoke (ETS); pesticides; and allergens from mice, cockroaches, and dust mites. Samples are analyzed using various laboratory techniques. The goal is to evaluate the impact of these exposures on infant and child health.

A critical element of the center's research is its communication of study findings back to the low-income communities in which the study cohorts reside. In New York City, a coalition of eight direct service and environmental health advocacy organizations ensures that results from the scientific research are delivered to these communities in ways that are meaningful and usable in improving daily environmental health at home and in the larger neighborhood. The community

health education campaign, Healthy Home Healthy Child, was developed to share health information and prevention methods for air pollution, cigarette smoke, drugs and alcohol, garbage management, lead poisoning, nutrition, and pesticides.

CENTER FOR COMMUNITY HEALTH AND EDUCATION

For over twenty-five years, the Center for Community Health and Education has provided primary health care and reproductive health services to women and adolescents in northern Manhattan. These services, operated under the aegis of the NewYork-Presbyterian Hospital, represent a joint effort between the center, the Joseph L. Mailman School of Public Health of Columbia University, and the Ambulatory Care Network of the NewYork-Presbyterian Hospital. The center, directed by Lorraine Tiezzi, Associate Clinical Professor of Population and Family Health, also collaborates with the local public schools; the Columbia Departments of Pediatrics, Obstetrics and Gynecology, Psychiatry, and Ophthalmology; and with the School of Dental and Oral Surgery. In addition to medical and mental health, and health education services at these clinics, the center has an extensive adult parent-education program and a high school HIV-prevention program, each with hundreds of participants and designed with the recognition that a single approach or strategy to good health is unlikely to be successful, given the multiple problems confronting the community. Washington Heights—a young, low-income, largely immigrant community—is remarkably healthy compared to other urban immigrant communities around the country. Most significant, perhaps, is the fact that the use of primary care is higher in Washington Heights than elsewhere in New York City, with a high proportion of the population having visited a doctor within the last six months. The center still has work to do, though, combating high rates of depression, anxiety, and domestic abuse, and lowering the high rates of unwanted pregnancies and STDs. Yet the center has made significant headway with each passing year through a regimen of constant evaluation and restructuring of health initiatives and clinic practices. The overall goals of the center's programs are to provide comprehensive women's health care services; to provide primary health care services—including medical and mental health services as well as HIV-related education, counseling, and testing to prevent early childbearing; to delay initiation of first intercourse; to increase use of effective contraception among the sexually active; and to empower parents to become advocates for themselves and their children. For more information, visit <http://www.mailman.hs.columbia.edu/cche.html>.

NATIONAL CENTER FOR DISASTER PREPAREDNESS

This newest center, created in April 2003, is an expansion of Columbia's current disaster preparedness efforts and will serve as a national resource and training ground for community and public health emergency preparedness. It will develop protocols for the diagnosis of and response to bioterrorism, with public policy recommendations as a key area of focus. Along those lines, the center,

under Dr. Irwin Redlener's direction, will soon release a report on the readiness of the pediatric public health community to deal with bioterrorism.

The center will also help communities gauge their state of readiness and offer guidance on how to improve it. It will also work with medical facilities to establish guidelines and costs for achieving high levels of preparedness. The center will help define preparedness; identify and provide for the needs of communities, families, and children; *and establish guidelines for communication to the public.* In addition, the center will identify and prepare appropriate strategies to meet the psychological and social aspects of preparedness and response to terrorism, and develop training curricula for public health officials.

The School currently leads several initiatives in disaster preparedness. Faculty from the School conducted a needs assessment of mental health issues affecting New York residents directly related to the World Trade Center disaster. Other initiatives at the School are studying NYC schoolchildren suffering from mental health disorders and identifying children with high need for September 11-related mental health services. The School's researchers are assessing the effects of airborne pollutants on the health of pregnant women and their babies who were in the vicinity of the World Trade Center disaster. The School's Center for Public Health Preparedness, whose many programs will continue under the national center, is examining the factors associated with the evacuation of the World Trade Center.

INTERNATIONAL CENTER FOR HEALTH OUTCOMES AND INNOVATION RESEARCH

This center's vision is to improve health by advancing the science of clinical evaluative research and facilitating medical innovation through evidence-based science policy. The center's mission is to improve health care through the measurement of meaningful outcomes of medical treatment and scholarly analysis of medical innovation. The center's research objectives are to conduct clinical evaluative research, emphasizing randomized clinical trials that evaluate standard and innovative surgical therapies and medical devices; to develop new analytical methods for evaluating medical treatments; to conduct quality-of-care studies that focus on medical error reduction; to advance innovation in medicine by creating a better understanding of how new interventions emerge and are incorporated into clinical practice; to investigate the health policy implications of its research findings; to educate new investigators in health services research; and to strengthen and expand high-quality, interdisciplinary clinical evaluative and policy research at the Health Sciences campus of Columbia University and NewYork-Presbyterian Hospital. The research programs encompass clinical evaluative research, methodological research, and health policy analysis. While the original focus was on strengthening clinical evaluative research in surgery, the center has now developed clinical research collaborations with the Departments of Pediatrics, Orthopedics, Pulmonary Medicine, Endocrinology, and Cardiology. It conducts research in three major areas: (1) clinical evaluative research, particularly,

clinical trials of emerging surgical and device procedures; (2) patient safety research; and (3) science and technology policy research.

CENTER FOR GENDER, SEXUALITY, AND HEALTH

Over the course of recent decades, increasing attention has come to focus on the social and cultural dimensions of sexuality. Whether in relation to sexual health and well-being, sexual education and human development, or sexual rights and diversity, sexuality has become a central area of debate both within the United States and internationally. While issues related to sexuality, and the social and cultural debates that they have engendered, have become increasingly central in recent years, the development of social science research and training focusing on sexuality has for the most part failed to accompany the fast-paced transformations taking place in these issues and debates. The Center for Gender, Sexuality, and Health provides support for a range of activities aimed at exploring the broader relations between sexuality, culture, and society, and at strengthening existing institutional bases for the development of sexuality research and training activities. Through its seminars, lectures, and research projects, the center has provided students an opportunity to explore current research around sexuality, gender, and health, and to interact with international experts in the field. The center also sponsors student roundtables, offering MSPH students a forum to present and discuss their research with faculty and other students.

CENTER FOR GLOBAL HEALTH AND ECONOMIC DEVELOPMENT

The Mailman School of Public Health and The Earth Institute at Columbia University created the Center for Global Health and Economic Development (CGHD), as a joint venture based at the Mailman School, to mobilize global health programs that help resource-poor countries address the burden of disease. Economic progress in developing countries depends on healthy citizens and environments. CGHD creates an umbrella for numerous ongoing public health initiatives at Columbia's Mailman School. Through partnerships with the United Nations (UN), the World Health Organization, and private donors, there are a number of existing programs, and new programs will be developed to address critical global health issues. Initiatives focus on a wide range of issues, such as AIDS, tuberculosis, maternal mortality, reproductive health, gender equity, sexuality, environmental contamination (arsenic), forced migration and health, assistance, and human rights. CGHD researchers have implemented and manage several initiatives that focus on helping governments and advisory organizations in developing countries attack preventable diseases and build infrastructures to deliver effective health care services. These projects include the following: (1) the Access Project for the Global Fund, with a grant from the Glaser Foundation, which helps countries develop strategic plans and grant requests for the Global Fund, a separately managed fund of private and national donations, directed at mitigating the

impact caused by HIV/AIDS, tuberculosis, and malaria (Technical expertise is provided to leaders in Nigeria, Ethiopia, Malawi, South Africa, Angola, and Haiti.); (2) MacroHealth (with assistance from the Gates Foundation), which works with the World Health Organization to offer more than a dozen poor countries technical assistance in scaling up essential health services to ensure that health systems are adequately financed, operating effectively, and dedicated to the most important health problems; (3) the Millennium Project, a UN initiative, led by Jeffrey Sachs, to end poverty-related death and illness in poor countries by 2015 by working toward the UN's Millennium Development Goals (Significant among the goals are the reduction of preventable diseases, such as HIV/AIDS, malaria prevention projects, and maternal and child health initiatives.); (4) MTCT-Plus (Mother to Child Transmission), launched by the Mailman School in December 2001, the first major multi-country, family-centered AIDS treatment program for developing countries. Programs getting underway at forty sites in eight African and Asian countries are aimed at providing HIV/AIDS prevention and health care for mothers and children. MTCT-Plus care and treatment initiatives will serve as demonstration programs for the new Global Fund to Fight AIDS, TB, and Malaria. An overarching objective of CGHD is to promote interdisciplinary collaboration across schools and programs of Columbia's Health Sciences and main campuses—including research, education, and service programs—in order to improve the health of the world's poorest people. In addition, the center will work in close collaboration with a new inter-departmental Master of Public Health track on global public health that is currently being developed at the Mailman School.

CENTER FOR INFECTIOUS DISEASE EPIDEMIOLOGIC RESEARCH

Infectious diseases, once thought long conquered, have reclaimed their importance in the field of public health and public policy, both domestically and internationally. The global impact of HIV/AIDS, tuberculosis, malaria, and diarrheal and respiratory infections in children underscores the importance of infectious diseases. The recent recognition of emerging new pathogens has also highlighted the importance of understanding their epidemiology. In response to this need, the Center for Infectious Disease Epidemiologic Research (CIDER) was established at the Mailman School of Public Health. The center has the following aims: to expand research efforts in the epidemiology of infectious diseases of domestic and international significance; to foster collaborative research among interested scientists within the School and the University; to establish and maintain linkages to federal, state, and international agencies that are involved in the prevention and control of infectious diseases; to expand teaching and training in infectious diseases epidemiology; and to develop a cadre of young investigators devoted to this area of research. The current activities of faculty affiliated with the center include research on HIV/AIDS, tuberculosis, nosocomial infections, vaccine development, and emerging infections. For more information, visit their Web site: <http://www.mailman.hs.columbia.edu/epi/research/Infectious/infectious-center.html>.

HARLEM HEALTH PROMOTION CENTER

The Harlem Health Promotion Center is one of the twenty-three federally funded prevention centers nationwide, and the only one which serves a predominantly African-American population in an urban setting. Its mission is to identify strategies for reducing morbidity and mortality among Harlem residents. Through partnerships with local community and business organizations, the center has become a trusted resource for people living in Harlem. The center provides a valuable resource for MSPH students through faculty expertise as well as opportunities to develop skills in program design, implementation, and evaluation in an urban setting by working as research assistants on center projects. Students are able to apply theoretical knowledge from the classroom to real health problems that compromise the health status of the Harlem community, such as cardiovascular disease, prostate cancer, asthma, sexually transmitted disease, adolescent smoking, and youth injury and violence, as well as to gain experience in community collaboration and community-based programming and research.

CENTER FOR THE HISTORY AND ETHICS OF PUBLIC HEALTH

The Center for the History and Ethics of Public Health is the first such center established in a school of public health and seeks to bring together academic historians, public health practitioners, and educators in a unique effort to establish history as an integral part of all health policy and public health analyses. Presently, the associates of the center are all participants in the Program in the History and Ethics of Public Health and Medicine, which trains M.P.H. and Ph.D. students in collaboration with the History Department and the Center for the Study of Society and Medicine in the Medical School. The mission of the Center for the History and Ethics of Public Health is to create a place where scholars and practitioners can meet in an effort to bring a level of historical sophistication to policy and research efforts in public health, and is a valuable resource for all public health students. The center sponsors lecture series by experts in the fields of history and ethics of public health and medicine, offering students the opportunity to learn about current ethical issues in public health and the ways in which historical analyses are being applied to inform current public health policy.

THE NEW YORK AND NEW JERSEY PUBLIC HEALTH TRAINING CENTER

The New York and New Jersey Public Health Training Center is one of fourteen national centers supported by the Health Resources and Services Administration (HRSA). The center is a partnership of the three accredited schools of public health in New York and New Jersey, including the Mailman School of Public Health, in collaboration with their respective city, state, and local health departments. The purpose of the center is to train the current and future public health workforce to effectively deliver the Essential Public Health Services to communities throughout New York and New Jersey and

to improve community access to a diverse and culturally competent future public health workforce. Current activities include diversifying the M.P.H. student body, improving the practicum experience for students, and providing funding information for current MSPH M.P.H. students and applicants. The center is a valuable resource for students and applicants, providing information through its Web site about current funding opportunities predominantly geared toward minority students and potential practicum opportunities and information on how to make the most of their practicum experience, as well as information about the Essential Services of Public Health and the Public Health Professional Core Competencies, which enable the public health workforce to deliver the Essential Services.

CENTER FOR THE PSYCHOSOCIAL STUDY OF HEALTH AND ILLNESS

Founded in 1997, the federally funded Center for the Psychosocial Study of Health and Illness investigates how patients and families adapt to chronic and life-threatening illnesses, including cancer and HIV/AIDS. As a research training site for mental health and public health graduate students and postdoctoral students, the center has developed the M.P.H. program in Aging and Public Health. The center's multidisciplinary staff, including sociologists, psychologists, gerontologists, social workers, and nurses, studies bereavement, informal caregiving arrangements, and the genetic and lifestyle risk factors for chronic illnesses. In addition, the center provides technical assistance in evaluating several HRSA-sponsored palliative care programs for underserved and difficult-to-reach people infected with HIV. The expertise of center staff is a resource for students who are interested in the psychological, social, and practical issues surrounding adaptation to illness, surviving illness, and the exploration of preventative health behaviors in the context of the changing health care system. Students have had the opportunity to work with faculty on center projects, gaining practical experience in public health research and program design, implementation, and evaluation.

THE CENTER FOR PUBLIC HEALTH PREPAREDNESS

The Center for Public Health Preparedness is part of a national system of Academic Centers for Public Health Preparedness established by the Centers for Disease Control and Prevention (CDC). The Mailman Center for Public Health Preparedness is an integral partnership between the New York City Department of Health and Mental Hygiene (NYC DOHMH) and the Mailman School of Public Health of Columbia University. The purpose of the center is to strengthen linkages between public health practice and academe. Its overall goal is to serve as a resource for integrated public health training and workforce development, with a special emphasis on preparing the frontline public health workforce to deal with the special threats posed by infectious diseases (both newly emerging infectious diseases and HIV/TB/STDs), bioterrorism, and other emergency situations. The center is working in close partnership with the NYC DOHMH (as well as regional partners) to design, implement, and evaluate

integrated curricula for public health practice. "Emergency preparedness" will serve as a framework, with a special focus on emerging threats, bioterrorism, and infectious disease as a unifying theme in integrated curricula. The training objectives for the center are focused on achieving competencies and skills that enable the workforce to provide the essential public health services as they relate to emerging infections, bioterrorism, and other urgent situations. The center will serve as a dedicated resource for implementing and evaluating new technology tools and distance-learning methodologies for public health workforce development and preparedness for emerging threats and bioterrorism. The center is also working on developing and testing new tools for public health surveillance and risk communication. The center serves as a resource for identifying, developing, testing, and evaluating promising new/innovative training methodologies, and for developing cross-categorical technical collaboration and training. An advisory committee consisting of the key professional personnel, national experts, and representatives from the public health practice community guides the work of the center. The center will collaborate with other funded centers nationwide to provide a national resource for public health workforce development and with other partners, as appropriate, to strengthen public health practice both within New York City and on a national level. For more information, visit <http://www.mailman.hs.columbia.edu/CPHP/index.html>.

THE CENTER FOR URBAN EPIDEMIOLOGIC STUDIES

The Center for Urban Epidemiologic Studies (CUES) is a research consortium established by The New York Academy of Medicine in partnership with the New York City Department of Health (NYCDOH) and in cooperation with multiple collaborating institutions to improve the health of urban populations. CUES was established to conduct collaborative, multidisciplinary, population-based research, with a special focus on low-income, disadvantaged populations, in order to bring about a better understanding of diseases and other threats to health concentrated in urban areas. CUES today conducts studies addressing the complex social, environmental, and biological influences on the health of urban populations. CUES investigators conduct a wide range of studies about topics such as HIV and other infectious diseases, substance abuse, asthma, the role of social determinants of health, and acute cardiac arrest. CUES teaching and training includes: a teaching and training service for researchers in-house and from partner and other institutions; regular seminars to discuss and disseminate collaborative research; journal clubs to review, critique, and discuss new articles of interest from epidemiologic, sociologic, biologic, and related literature; an Urban Epidemiology Research Fellowship to train a top young researcher in the latest epidemiologic methods and to expose her/him to a wide range of cross-cutting collaborative research projects; exploration into new methods to develop new methods and discover new levels for understanding urban health problems. For more information, visit <http://www.nyam.org/divisions/urbanepi/index.shtml>.

THE CENTER FOR VIOLENCE RESEARCH AND PREVENTION

Since its founding in June 1995, the Center for Violence Research and Prevention has conducted and disseminated research on the causes and control of interpersonal violence. Through a diversified program of both basic and applied research, the center's staff and associates work closely with, and are a resource to, researchers, clinicians, public and private agencies, and community organizations whose work addresses pressing violence problems. The center continues to work in partnerships with public health and criminal justice agencies whose work is aligned with the center's mission. In these partnerships, it conducts research and designs programs to address the places and populations at risk for violence. Research in each area involves diverse social science methods. Current research programs span four areas: the neighborhood contexts of adolescent violence, spatial analysis of violence and injury, law and social policy, and posttraumatic stress in police officers. For more information, visit <http://cpmcnet.columbia.edu/dept/sph/cvrvp/index.html>.

COLUMBIA CENTER FOR YOUTH VIOLENCE PREVENTION

The Columbia Center for Youth Violence Prevention (CCYVP) is a multidisciplinary collaboration of researchers, policymakers, and community representatives committed to understanding and reducing youth violence, one of the nation's leading public health problems. Directed by Dr. Bruce Link, CCYVP is a joint effort of the Mailman School of Public Health, the Institute for Child and Family Policy, the New York State Psychiatric Institute, the NYCDOH, and community-based organizations serving New York families and neighborhoods. Established by the CDC in 2000 as an Academic Center of Excellence, CCYVP has as its goals to bring together researchers, practitioners, community representatives, and policy makers to foster an integrated approach to youth violence in the New York City metropolitan area; monitor changes in youth violence in New York City; investigate causes and consequences of this violence; identify, support, and evaluate promising interventions; develop an integrated, multilevel, public health intervention plan to reduce youth violence in the New York City metropolitan area; train a new generation of violence researchers and practitioners; and disseminate findings regionally, nationally, and internationally. More information is available at their Web site: <http://cpmcnet.columbia.edu/dept/sph/ccyvp/>.

Partners in Public Health

In addition to research collaboration with other units of the University and NewYork-Presbyterian Hospital, the School is engaged in research collaboration with a number of health agencies and community-based organizations. The School's relationship with many of these organizations is multifaceted, including collaborative

research, service, and training activities. Some of the most prominent collaborations, and ones in which the School has formal research agreements, are described below.

NEW YORK CITY DEPARTMENT OF HEALTH

The partnership between the School and the New York City Department of Health (NYCDOH) began in the 1920s. This collaboration—between the largest local health department in the United States and one of the oldest schools of public health—has flourished over the years. Today, the collaboration includes joint research activities and a number of service and training programs.

Collaborative research activities include an assessment of health needs in the communities of Harlem and Washington Heights/Inwood, and projects focusing on areas of particular concern to inner-city minority populations such as infant mortality, child health, tuberculosis control and tracking, diesel exhaust, prenatal care, pediatric ambulatory care services, child immunization status, lead poison prevention, asthma causes and prevention, family planning, and violence.

The School has a long tradition of supporting projects that provide technical assistance to agencies or organizations that provide health services to populations in need. Locally, this tradition has taken the form of strong ties with Departments of Health in both New York City and New York State. Equally strong ties have been developed over the years with organizations in a number of developing countries. Examples of each of these are provided below.

Beginning with the first head of the School in the 1920s, who also served as Commissioner of Health for New York City, a partnership between the School and the NYCDOH was strengthened in 1939 by a joint agreement to construct a building on the corner of 168th Street and Broadway to house the School and create a municipal health center for the residents of Washington Heights.

This partnership has grown through the years and is now a model collaboration program—designated and funded as a formal model program in response to the Institute of Medicine's recommendation for closer ties between academic public health and public health practice. The collaboration now includes joint appointments, an assessment program to evaluate current models of the community-based outreach, and a violence prevention program initiated as part of the Statewide Violence Prevention effort.

The School and the NYCDOH have initiated a series of joint projects aimed at addressing the objectives set forth in the "Healthy People 2010" initiative, which include assessment of health needs in the communities of Harlem and Washington Heights/Inwood, and projects focusing on areas of particular concern to inner-city minority populations, such as infant mortality, child health, tuberculosis control, prenatal care, pediatric ambulatory care services, child immunization status, lead poison prevention, family planning, and violence.

NEW YORK STATE DEPARTMENT OF HEALTH

The School has also had a long history of collaboration with the New York State Department of Health (NYSDOH) in research, service, and training programs. Faculty and student research interns are engaged in studies and analyses on topics such as birth weight trends, HIV transmission in breast milk, childhood injury problems in New York City, evaluation of family planning, and community-based immunization services. The Heart of Harlem and Washington Heights/Inwood Healthy Heart Programs use multitargeted approaches to reduce morbidity from cardiovascular disease, including outreach to the community through churches, businesses, schools, and radio stations. Collaborative projects with the NYSDOH and the School's Department of Population and Family Health have included maternal and child health internships, analysis of low birth weight trends and ethnic differences in lifestyle during pregnancy, pregnancy outcomes in native-born and foreign-born Puerto Ricans, prenatal care in Central Harlem, HIV transmission in breast milk, childhood injury problems in New York City, evaluation of family planning, and community-based immunization services. The Harlem Center for Health Promotion is collaborating with the NYSDOH and NYCDOH on policies to prevent tobacco sales to minors.

NEW YORK STATE PSYCHIATRIC INSTITUTE

The School is a collaborator with the HIV Center for Clinical and Behavioral Studies. This center, funded by a large grant from the National Institute of Mental Health, develops and analyzes community health education, prevention, and training programs for the high-risk community served by the Columbia Presbyterian Medical Center.

The School's Department of Biostatistics serves the statistical needs of researchers at the New York State Psychiatric Institute through access and training in state-of-the-art statistical techniques as needed for optimal use of their research data. This includes teaching statistics to researchers and postdoctoral fellows and providing short-term consultations on data analysis and design issues for grant submission and manuscript preparation. Methodological research focuses on such areas as analysis of longitudinal studies with generalized linear models and variance components models, survival analysis, models for the analysis of categorical data, and resampling techniques.

HARLEM HOSPITAL CENTER

Harlem Hospital Center, founded in 1887, is a progressive acute care general teaching hospital offering primary, secondary, and tertiary care for children and adults living in the central Harlem area. The main complex consists of seven buildings. Strategically located satellites extend the hospital out into the community. Managing over half a million annual patient visits, the hospital functions as the primary health care provider for a catchment area of 3.5 square miles. Since 1968, Columbia University has been responsible for all professional medical services in this hospital and nominates its

professional staff. The Mailman School is cooperating in demonstration services, applied training, health promotion and disease prevention programs, and public health research activities at the Hospital Center and the surrounding community.

The Department of Environmental Health Sciences is collaborating with the Harlem Hospital Center and the Harlem Asthma Research Team, carrying out an intervention trial focused on reducing exposures to indoor allergens among asthmatic children in northern Manhattan and the South Bronx. The study incorporates integrated pest management methods to reduce cockroach and rodent populations with minimal use of toxic pesticides. Effectiveness will be assessed in terms of reduced exposures, respiratory symptoms, and allergen-specific responsiveness.

Another collaborative project with Harlem Hospital is the Charles P. Felton National Tuberculosis Center, one of three "model" centers funded by the Division of Tuberculosis Elimination of the CDC. It is a partnership of Columbia University Health Sciences, including the School of Public Health, the New York City Health and Hospitals Corporation, and the NYCDOH, with a mandate to test innovative programs for the treatment of tuberculosis and latent tuberculosis infection (LTBI), and to develop and deliver education and training materials for professionals. The unique characteristics of the Harlem community have compelled the center to focus on initiatives tailored to fit its needs, such as providing comprehensive social support to reduce psychosocial barriers to treatment completion; developing and implementing new models of care such as directly observed therapy and medication supervision by peer workers; and educating and training community physicians, social workers, traditional healers, and others who provide care to the community.

In addition to core model center funding, the Tuberculosis Center receives research funding through the National Institutes of Health, along with the Tuberculosis Epidemiological Studies Consortium and the Tuberculosis Trials Consortium, both funded by the CDC. Current research activities include a randomized clinical trial testing the impact of peer-worker support on adherence to latent tuberculosis infection (LTBI) treatment; physician attitudes toward LTBI treatment and the impact of BCG vaccination; the impact of expedited clinic procedures on patient outcomes; a randomized clinical trial testing a once-weekly, twelve-dose treatment for LTBI versus traditional nine-month treatment; and a study of immunological and immunogenetic factors in tuberculosis and LTBI.

NEW YORK INJURY CONTROL RESEARCH CENTER

The New York Injury Control Research Center represents a multifaceted approach to counter the complex public health problem of violence. The center is comprised of representatives from both the state and city health departments, along with the Mailman School and the State University of New York (SUNY). The mission of the center is to facilitate and support multidisciplinary academic, public health, and community-based research to help reduce morbidity and mortality from intentional injury in New York State.

NEW YORK ACADEMY OF MEDICINE

The School's Center for Violence Research and Prevention has research partnerships with a number of agencies, including the New York Academy of Medicine, to focus on the places and populations at risk for violence. The center studies the antecedents, consequences, and social control of violence. Violence in families, racial disparities in juvenile justice, the waiver of juvenile offenders to adult courts, gun use among adolescents, the dynamics of crime and drugs in economically distressed urban neighborhoods, participation of women in drug selling, and youth gangs are among the center's areas of inquiry.

The Harlem Health Promotion Center is working with the Urban Research Center of the New York Academy of Medicine on a study of asthma in children in Head Start programs in northern Manhattan.

ACADEMY FOR EDUCATIONAL DEVELOPMENT

The Harlem Health Promotion Center and the Academy for Educational Development (AED) are carrying out a joint research project to identify and ameliorate gaps in the provision of emergency contraception to adolescents.

International Collaborative Research

The School has a strong track record in leading global health research projects, in collaboration with international health and development agencies, and with local governments, universities, and NGOs. In recent years, the School has greatly expanded its activities in global health, undertaking research that addresses infectious diseases, including HIV/AIDS, STDs, tuberculosis, and emerging infections; maternal and child health; forced migration; the cultural construction of sexuality; health and human rights; reproductive health; environmental health effects from exposures to arsenic, radiation, and lead; and comparative analyses of health care policies. In addition, the School carries out service and training programs in a large number of countries.

Partial List of Formal Research Agreements with External Organizations

Aaron Diamond AIDS Research
ABT Assoc. Inc.
Academy for Educational Development
Actuarial Research Corporation
Albany Medical College
Alianza Dominicana
Arizona State University
Associação Brasileira Interdisciplinar de AIDS

Baruch College Fund
 Boston Medical Center
 Bronx-Lebanon Hospital Center
 Center for Court Innovation
 Central Vermont Community Health Programs
 Children Now
 Children's Medical Center
 Cicatelli Associates Inc.
 Community Action Agency
 Community Action Project
 Comprehensive Rural Health Project
 Connecticut Voices for Children
 Department of Health and Human Services
 Duke University
 Economic Opportunity
 Education Development Center
 Emory University
 Family Health International
 Fox Chase Cancer Center
 George Washington University
 Hamlin Fistula Welfare Center
 Harlem Congregations
 Head Start of Greater Dallas
 Health Research, Inc.
 Hesperian Foundation
 Human Resource Agency
 International Center for Migration
 IPAS, Inc.
 Johns Hopkins University
 John Snow International Research
 Kunri Christian Hospital
 Laguna Division of Early Childhood
 Lewin Group
 Linangan NG Kabihan Inc.
 Lincoln Action Program
 Mandela School of Medicine, University of Natal
 Manpower Demonstration Research Corporation
 Marathon County Child Development Center
 Maui Economic Opportunity Inc.
 MD Medical Research Institute, Inc.
 Monash University
 Montclair State University
 Montefiore Medical Center
 Mount Sinai/NYU Health System
 Mount Sinai School of Medicine
 Myriad Genetic Lab Inc.
 National Development and Research Institute, Inc.
 New York Academy of Medicine
 New York Blood Center
 New York City Department of Health
 New York Injury Control Research Center
 New York Medical College
 NewYork-Presbyterian Hospital
 New York State Department of Health
 New York State Psychiatric Center
 Northern Manhattan Improvement
 Orange County Children and Parents Center
 Palm Beach County Head Start
 Profamilia, Santo Domingo
 Queens Comprehensive Perinatal Center
 Research Foundation for Mental Hygiene
 Research Foundation of CUNY

Research Foundation of SUNY
 Rocky Mountains Services
 Save the Children
 Shimantik Urban Primary Care Center
 Solu Hospital Development Committee
 South Africa Medical Research Council
 Southern Maryland Tricounty
 Southwest Human Development Inc.
 St. Luke's-Roosevelt Hospital
 St. Mary Community Action Center
 St. Vincent's Hospital and Medical Center
 Suffolk County Perinatal Center
 Teachers College
 Trenton Head Start
 Trustees of Tufts University
 Uganda Virus Research Institute
 Umatilla Morrow Head Start, Inc.
 University Autonomo Santo Domingo
 University of Capetown
 University of Illinois
 University of Medicine and Dentistry of New Jersey
 University of Minnesota
 University of Pittsburgh
 University of Southern California
 University of Toronto
 University of Washington
 West Harlem Environmental Action Project

Affiliated Columbia University Health Sciences Institutions

Columbia University Health Sciences campus is part of one of the world's foremost centers for patient care, biomedical research, and health sciences education and training. The Columbia Presbyterian Medical Center consists of Columbia's Health Sciences Division: the College of Physicians & Surgeons; the Schools of Dental and Oral Surgery, Nursing, and Public Health; and other health profession programs and institutes. The Medical Center, the nation's first, was created in 1922 as a permanent affiliation between the Presbyterian Hospital and Columbia University's College of Physicians & Surgeons. Shortly afterward, the Medical Center became affiliated with the New York State Psychiatric Institute, the oldest psychiatric research facility in the country. Today, in addition to the educational programs, the Medical Center includes the NewYork-Presbyterian Hospital clinical facilities, the New York State Psychiatric Institute, the Harkness Eye Institute, the Neurological Institute, and the NYCDOH Upper West Side District Health Center.

Apart from the University-hospital complex on the Medical Center campus, the Medical Center is also closely networked with an ever-expanding number of affiliated hospital centers in New York City, the greater metropolitan New York/New Jersey area, upstate New York, and Connecticut.

The facilities available at the Medical Center and its affiliated institutions amount to a "medical mall" second to none in the

United States. Its facilities have been the site of numerous important advances in the detection, treatment, and prevention of diseases; and it has continued to expand its leading-edge technologies across a broad spectrum of therapeutic areas over the years.

The following is a selection of the large number and variety of educational programs sharing the combined resources of the Medical Center and its affiliated hospitals.

GERTRUDE H. SERGIEVSKY CENTER

The Gertrude H. Sergievsky Center, established in 1977, focuses on developmental disorders of the nervous system that affect humans throughout life from the time of formation by genetic inheritance at conception until the day of death. The center's main focus has been the integration of epidemiology with genetic analysis and clinical investigation to explore all phases of diseases of the nervous system. Fundamental to this process has been the continuing organizational approach to these complex disorders. Investigators in the Sergievsky Center have essentially grouped themselves into several sections that conduct independent research, yet overlap extensively with the work of other colleagues and collaborators.

Some of the main research includes Alzheimer's disease and the aging nervous system; cognitive neuroscience to establish brain behavior relationships in healthy and diseased states; family studies and genetic epidemiology studies of epilepsy, Alzheimer's disease, Parkinson's disease, essential tremor, and other neurological disorders; movement disorders, with a large-scale genetic epidemiologic study of essential tremor in the Huntington's Disease Clinic; a new study of the genetics of Parkinson's disease; perinatal epidemiology and neurodevelopmental disorders; and efforts on stroke and cerebrovascular disease. Combining discoveries in molecular biology and genetics with large-scale epidemiologic approaches, Sergievsky Center investigators hope to identify fundamental causes for some of these nervous system disorders, with the long-term goal of successful intervention.

CENTER FOR THE STUDY OF SOCIETY AND MEDICINE

The Center for the Study of Society and Medicine is an interdisciplinary institution, examining the complex interactions between medicine and society. Center faculty use historical, sociological, literary, and philosophical methods to analyze clinical practices and biomedical research to broaden the training for health care professionals. Through an understanding of medicine in its full social, cultural, and ethical context, the center works to inform patient care and public policy. The center conducts an externship program on Human Rights and Medicine for fourth-year medical students at the College of Physicians & Surgeons, and an elective on immigrant health care and care near the end of life. The center faculty collaborates in the History of Public Health and Medicine program in the MSPH Department of Sociomedical Sciences. The center selects up to four first-year medical students for Simon Rifkind Summer Fellowships to study issues of social medicine.

NAOMI BERRIE DIABETES CENTER

The Naomi Berrie Diabetes Center is located in the new Russ Berrie Medical Science Pavilion on the Health Sciences campus. The center combines both patient care and research. It offers state-of-the-art multidisciplinary and humanistic clinical care for both adults and children with diabetes mellitus. Educational, nutritional, and psychosocial counseling focus on helping the patient and family to cope effectively with diabetes management. Basic and clinical research programs in the center focus on the biologic basis of diabetes and the prevention of Type 1 and Type 2 diabetes, as well as diabetic complications. Emphasis is on translational or bridge research enabling basic research discoveries to move as rapidly as possible to the patient.

MORRIS W. STROUD III CENTER FOR STUDIES ON QUALITY OF LIFE

Renamed in 1995, the Morris W. Stroud III Center for Studies on Quality of Life includes its former identity, the *Center for Geriatrics and Gerontology*, as well as the *Geriatric Educational Center*. Its administrative relationships are with the Faculty of Medicine of Columbia University and the New York State Psychiatric Institute. The center's activities include conducting fundamental studies on the theory, measurement, and mechanisms of quality of life in health, illness, and aging; testing theory in population surveys (especially in northern Manhattan in New York City and in London, England); evaluating and developing assessment techniques and clinical practice standards in acute, long-term, and home-based care sites; training researchers and clinicians in applications; and fostering interdisciplinary collaboration on quality-of-life issues.

INSTITUTE OF HUMAN NUTRITION

The Institute of Human Nutrition is an interdisciplinary unit whose mission is to study all aspects of nutrition that relate to human health. The institute functions to coordinate academic nutrition activities being carried out within many units (faculties, departments, centers) within the Columbia University system. Through its M.S., Ph.D., and postdoctoral programs, the institute trains individuals for scholarly activities in university and research centers that are in the forefront of the movement to advance nutrition as a health science. In collaboration with the institute, the Mailman School of Public Health conducts research and academic activities that focus on the role of nutrition in health promotion and disease prevention, and on the translation of nutrition information into behavior, medical practice, and policy.

HERBERT IRVING COMPREHENSIVE CANCER CENTER

The Columbia Presbyterian Medical Center has had a National Cancer Institute-designated Cancer Center since 1972. The objectives of this Cancer Center are (1) to support and facilitate basic laboratory and clinical research related to cancer, and foster collaborative

research projects between epidemiologists, laboratory scientists, and clinical investigators; (2) to promote a targeted research program in human cancer causation and prevention that interfaces with other research activities of the center; (3) to provide education and training in cancer research for scientists, clinical investigators, and health professionals at all levels; and (4) to promote the dissemination of cancer-related clinical and technical expertise and to foster cancer control activities in the community. A specific emphasis of the center is the use of concepts and methods in cellular and molecular biology to enhance understanding of the etiology and pathophysiology of human cancer, and to develop more effective strategies for cancer prevention, diagnosis, and treatment.

HIV CENTER FOR CLINICAL AND BEHAVIORAL STUDIES AT THE NEW YORK STATE PSYCHIATRIC INSTITUTE

The Mailman School of Public Health is a collaborator in the HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute. This center, funded by a large grant given by the National Institute of Mental Health, develops and analyzes community health education, prevention, and training programs to change high-risk behaviors among many different populations including women and children, intravenous drug users, gay men, and heterosexual men and women.

THE RICHARD AND HINDA ROSENTHAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE

The Richard and Hinda Rosenthal Center for Complementary and Alternative Medicine was established in 1993 as one of the first comprehensive programs in alternative medicine at an academic institution. Its primary objectives are to foster and conduct research to determine the efficacy and safety of alternative and complementary remedies and practices, and probe their underlying mechanisms; develop curriculum and training programs to promote wider knowledge, greater understanding, and credible scientific efforts in alternative and complementary medicine; and become an international leader in providing information to practitioners, researchers, and the public about alternative and complementary therapies.

The center is also the home of the *Center for Complementary and Alternative Medicine Research in Women's Health*, one of ten specialty centers in alternative medicine funded by the National Institutes of Health, and is a collaborative effort involving faculty from the College of Physicians & Surgeons, the School of Nursing, and the Mailman School of Public Health. Broad areas of interest include botanical medicine, ethnomedicine, mind/body medicine, manual therapies, and nutritional therapies. Other issues of concern include those of minority women and those involving appropriate methodologies for alternative medicine research. Specific women's health areas receiving initial focus include breast cancer, menstrual disorders, menopausal symptoms, uterine fibroids, osteoporosis, and pregnancy and childbirth.

IRVING CENTER FOR CLINICAL RESEARCH

The Irving Center for Clinical Research is a core facility that provides resources to clinical investigators to stimulate multidisciplinary, intensive investigation of human disease and clinical pharmacology. It includes adult and pediatric units, a metabolic diet kitchen, an outpatient unit, a core laboratory, and a computer facility. The center is designed so that acutely ill as well as ambulatory patients can be studied. Use of the center is open to qualified faculty members of the clinical and basic science departments of the College of Physicians & Surgeons upon approval of the advisory committee. Although the primary purpose of the facility is concerned with research, it also provides unusual opportunities for undergraduate and postgraduate training in clinical investigation.

CENTER FOR MEDICAL INFORMATICS

The Integrated Academic Information Management System (IAIMS) is considered a model information system for a medical center that combines academics and health care. The National Library of Medicine chose the Columbia Presbyterian Medical Center as one of the first two sites to receive funding for full-scale implementation of an integrated information system. The University's Center for Medical Informatics, with the hospital's Clinical Information Services Department, provides implementation support for the IAIMS network, which integrates research, clinical care, library, academic, and administrative information systems. The IAIMS information network unites students, faculty, and staff on the Health Sciences campus, with links to the downtown campus as well as the hospital's neighborhood health clinics and the Allen Pavilion. Authorized users can access lab results and other clinical decisions, consult library references, schedule surgery, code medical records, view medical charts, send electronic mail, use word processing, and carry out many hospital administrative functions. A Ph.D. program in medical informatics is offered through the Graduate School of Arts and Sciences.

Affiliated Health and Academic Resources

The Mailman School of Public Health is committed to the importance of public health service as an essential component of its mission. Service is an integral component of the Mailman School's approach to public health education as reflected in the mission statement on page 2, sharing priority with teaching and research, and related closely to those two components. The strong commitment of the School to public health service is clearly demonstrated in the collective activities of the School and its departments and centers, in the activities of its individual faculty, and in the explicit focus of many of the School's research projects on topics that are directly applicable to the delivery of public health services.

The service programs of the School focus primarily on the most vulnerable and underserved populations—the homeless, refugees, communities of color, women, the poor and uninsured, and children. The Mailman School carries out a variety of direct service activities and collaborates with other organizations in the provision of services. The extensive involvement of the School in direct service delivery programs is admittedly unique. Few schools of public health see one of their roles as being the provision of health care to populations in need. However, our point of view is that this kind of involvement on the part of schools of public health can be extremely important. In the same way that traditional clinical activities play a crucial role in medical and nursing education, and clinical research is an accepted activity among faculty in medical and nursing schools, one can make an equally strong case for the importance of service delivery programs for teaching in schools of public health and for faculty clinical research. If one of the goals of public health education is to train students who will assume positions as managers of service delivery programs, then service programs run directly by schools of public health can play an essential role in the training of these students by providing opportunities for potentially valuable practical training. Similarly, school-sponsored public health practice or service programs provide a potentially valuable setting for health services-related research that can be carried out by school faculty. Therefore, the Mailman School's involvement in sponsoring service delivery programs represents a considerable strength.

The Mailman School plays an important and acknowledged role within Columbia University in linking research and scholarship to the urgent problems of communities, to the development of solutions and services to meet those problems, and to the strengthening of the interdisciplinary relationships necessary to address the complex issues involved. Examples of such projects include the following:

Columbia Center for Children's Environmental Health
Developing Workable Solutions for Improving Health Insurance
Coverage for Working Americans

Drug Use and Course of Homelessness Among Single Adults
Finding Common Ground in the Era of Welfare Reform and
Managed Care

Harlem Health Promotion and Disease Prevention Center
Health, Wealth, and the City: Records of New York's Department
of Health and the Nation's Urban Landscape
Investigation of NYPD Stop and Frisk Practices

Metropolitan New York Registry of Breast Cancer Families
New York City's Medicaid Managed Care Initiative
Northern Manhattan Adherence Initiative

Northern Manhattan Start Right Program
Northern Manhattan Women and Children HIV Demonstration
Project

Policies to Support Low Income Working Families in New York
Reducing Indoors Allergen Exposures in Northern Manhattan
Urban Air Toxic Exposures of High School Students
Women Living with HIV in Two Time Periods

SOME AGENCIES THAT HAVE FORMAL SERVICE PROJECT CONTRACTS/AGREEMENTS WITH THE MAILMAN SCHOOL

Alianza Dominicana
 American Legacy Foundation
 American Museum of Natural History
 Asian American Network for Cancer Awareness Research and Training (AANCART)
 Association of Schools of Public Health
 Ben Gurion University of the Negev
 CARE
 Centers for Disease Control and Prevention
 City University of New York
 Cornell University
 Engender Health
 Family Health International
 Federation Internationale de Gynecologie et Obstetrique
 Harlem Congregations for Community Improvement
 Harlem Hospital
 Indian Institute of Management at Ahmedabad
 International Rescue Committee
 John Snow International
 Makere University, Kampala, Uganda
 Management Institute for Clinical Chiefs (New York)
 Milbank Memorial Fund
 National Head Start Program
 National Medical School of Mali
 New Jersey Department of Health and Social Services
 New York Academy of Medicine
 New York City Board of Education
 New York City Department of Health
 NewYork-Presbyterian Hospital
 New York State Department of Health
 Planned Parenthood of New York City
 Save the Children
 State University of New York at Albany School of Public Health
 State University of New York at Stony Brook Medical School
 Thusano School of Public Health, South Africa
 Uganda Ministry of Health
 UNFPA
 UNICEF
 University of Medicine and Dentistry of New Jersey
 University of Natal
 West Harlem Environmental Action, Inc. (WEACT)
 Women's Commission for Refugee Women and Children International
 World Health Organization

Student Affairs

At the Mailman School of Public Health (MSPH), educational experiences are found both in and out of the classroom. Important to your educational pursuit are volunteer opportunities, social and alumni networking, career counseling, and other prospects to support your studies through paid internships and scholarships. The staff of Student Affairs is committed to providing these opportunities for you and to serving as resources for you throughout your tenure at the MSPH.

Under the direction of the Dean of Students, who is also a Vice Dean at the MSPH, Student Affairs provides a continuum of services from before you enroll, throughout your tenure, and then upon graduation, when you secure a position as a public health professional. Admissions and Financial Aid, Student Academic Affairs and Student Life, and Career Services are the units within this office that are organized around student enrollment and provide support throughout the year. Located in the School of Public Health building at 722 West 168th Street, on the entry floor in Suite 1030, New York, NY 10032, the office is open from 9:00 a.m. to 5:00 p.m., Monday through Friday. However, staff members can be available by appointment at other hours.

ADMISSIONS AND FINANCIAL AID

The staff of Admissions and Financial Aid is responsible for the recruitment of highly qualified students to MSPH and addresses one of the greatest concerns of students—financing their education. The highly receptive and qualified staff is responsible, from first inquiry through the admissions and financial aid process, for providing program information and counseling prospective students; coordinating the admissions reviews and decision process; and notifying applicants of the results. See chapters on *Admission Requirements and Application Procedures*; *Fees, Expenses, Billing*; and *Financing Your Education* for further information.

STUDENT ACADEMIC AFFAIRS AND STUDENT LIFE

This office performs a number of functions for the School and the student body. Student Academic Affairs is responsible for coordinating registration, class and room scheduling, academic monitoring and grade review processes, cross-registration procedures, information dissemination and management of the Student Academic Affairs Web site; implementing the degree audit review system (DARS); and liaising with other University offices, such as the University Registrar (both at the Morningside and Health Sciences campuses), Student Administrative Services, and the Health Sciences Library.

Student Life provides essential cocurricular activities that enhance the student experience at the MSPH. With involvement from the student clubs and organizations, the 800 students enrolled at the

MSPH can benefit from this office's efforts through improved interaction with the surrounding community and extended opportunities for community service; preparation for orientation and graduation; extended social activities through the Student Government Association and other student organizations; scheduled utilization of the Student Commons for special student events; and provision for interaction with faculty and administration, such as Deans' breakfasts, lunches, barbeques, and brown-bag seminars.

CAREER SERVICES

The Office of Career Services (OCS) supports matriculates and alumni in their career education and job search activities. The office is located in Suite 1029, 722 West 168th Street, and is open from 9:00 a.m. to 5:00 p.m. To accommodate busy schedules, appointments can be scheduled at other times by prior arrangement.

Among the services offered by the OCS are individual consultations on career development issues; career management and job search workshops on topics including résumé and cover letter development, interviewing, and networking to prepare students for the realities of the job market; on-campus recruiting activities to facilitate student contact with prospective employers; and an Alumni Mentoring Program to refer students to alumni for guidance and mentoring.

Among the resources available to students and alumni are an articulated, content-rich Web site that features career management strategy and easy access to job opportunities; a career resource room that features a seating area for students to review career materials and research employment opportunities; a career resource library with references on career planning and the job search; personal computers for accessing the Career Services Web site and other pertinent Web-based resources; and a copier and fax machine to facilitate job searches.

Office publications include résumé books that highlight the talents of students seeking internships and full-time, permanent job opportunities; career management/job search strategy guides; and handouts on career development topics.

Student Organizations and Other Student Programs and Services

STUDENT GOVERNMENT ASSOCIATION

The Student Government Association (SGA) is dedicated to improving student life on campus. Utilizing student activity fees, SGA organizes a variety of activities, including social events, a brown-bag speaker series, panel discussions on health issues, and community outreach activities. Students participate on School and University committees, assist in alumni and School-sponsored events, and maintain a liaison with other student groups on the Health Sciences and Morningside campuses. SGA has an office in Student Commons and is composed of seven committees: orientation, international

students, service, communications, social, student concerns, and academic/lecture. They provide a voice on behalf of students to the senior administrators of the School.

STUDENT CHAPTER OF THE AMERICAN COLLEGE OF HEALTHCARE EXECUTIVES (ACHE) AND THE BLACK AND LATINO STUDENT CAUCUS (BLSC)

Within the Mailman School of Public Health there are two student organizations that promote professional development and interaction with faculty and alumni, and provide opportunities to learn about issues in public health and public health careers: the Student Chapter of the American College of Healthcare Executives and the Black and Latino Student Caucus. Both groups also join with the SGA in sponsoring educational and social events for students.

OTHER STUDENT ORGANIZATIONS

There are other student groups on the Health Sciences campus that appeal to interests of students across school lines such as the South Asian Health Sciences Association (SAHSA), which addresses social and political issues of concern to students from South Asian countries. Information on all the student organizations on the Health Sciences campus can be found in the P&S Club located in Bard Hall.

STUDENT TRAVEL FUND

Students are encouraged to attend conferences and professional organization meetings as part of their training and development while studying at the Mailman School of Public Health. The School initiated a Student Travel Fund to help defray the cost of attendance at conferences where students will be making presentations or where work, to which the student made a significant contribution, is being presented. Students must get approval before traveling by submitting an application to the Office of Student Affairs. Students are limited to one travel reimbursement per academic year.

BARD ATHLETIC CENTER

The Bard Athletic Center at 50 Haven Avenue on the Health Sciences campus is a modern health club facility that includes a swimming pool, squash courts, a gymnasium, and a fully equipped exercise room. It offers an aerobics exercise program, a basketball league, and a volleyball group. Staffing includes a certified personal trainer to instruct on the use of equipment and to help develop personal fitness programs.

Student Housing

AT THE HEALTH SCIENCES CAMPUS

Accommodations are limited in number and may not be available to all students accepted into the School. Applicants are encouraged to pursue non-University housing options whenever possible, including

the Off-Campus Housing Resource Center located in Bard Hall, 50 Haven Avenue, Room 105, New York, NY 10032; 212-305-3491.

The University maintains housing for single students and couples enrolled in approved full-time academic programs. Housing for couples at the Health Sciences campus is available to married couples and couples living in domestic partnership. Because of the very limited availability of such housing, the status of couples applying for housing will be verified.

Housing on the Health Sciences campus is coordinated through the Health Sciences Housing Office, Bard Hall, 50 Haven Avenue, New York, NY 10032; 212-304-7000. For more information, visit <http://cpmcnet.columbia.edu/dept/hshousing/>. Housing assignments are made on the basis of distance from campus, date of receipt of application, access to alternative housing or resources for commuting, and accommodation availability.

Housing options include single dormitory rooms, a limited number of studio apartments, and suites. All single student accommodations are furnished; all couples housing is unfurnished. Telephone service is not included in the monthly rental. All buildings have laundry facilities. Elevator and doorman service is available in all buildings except 106 Haven Avenue. All accommodations are "wired" and equipped with a data/voice jack that can provide access to both the campus telecommunications system and campus computer network.

Commuter Parking: A limited number of University parking spaces may be available for students who commute to the Health Sciences campus. Parking application forms can be obtained from the Office of Student Affairs and need to be certified by that office. Students who live in University Housing on the Health Sciences campus are not eligible for University parking.

Evening parking for enrolled students may be available at a reduced rate in the NewYork-Presbyterian Hospital parking lot after 5:00 p.m. Information can be obtained from the Hospital Security Office at 620 West 168th Street.

AT THE MORNINGSIDE CAMPUS

Housing in the Morningside Heights neighborhood in buildings owned by Columbia University is available to Columbia University full-time graduate, professional, and General Studies students registered in degree programs at the Morningside campus.

In order to obtain housing from the University, a new student must (1) satisfy certain eligibility criteria, (2) be approved for housing by his or her school, and (3) follow the application procedures and submit an application online at <http://www.columbia.edu/cu/ire/stumsc.html>. Additional information and paper applications are available from the Office of Institutional Real Estate, University Apartment Housing (UAH), Columbia University, Mail Code 8801, 400 West 119th Street, New York, NY 10027.

The Off-Campus Housing Assistance (OCHA) Office helps Columbia affiliates in their search for rental housing in non-Columbia-owned

buildings located in the metropolitan area. The office maintains a Web site and regular office hours to provide advice, resources, and an online database of available housing at <http://www.columbia.edu/cu/ire/ocha>. OCHA offers its services free of charge to students, graduates within the past five years, faculty, and staff of the University. OCHA is located at 419 West 119th Street, lower level. The telephone number is 212-854-2773. A current Columbia identification or letter of acceptance is required to register to use the OCHA database.

International House (I-House) provides residents with a cross-cultural environment of particular interest to those concerned with international exchange. As a private residence located at Riverside Drive and 122nd Street, it accommodates approximately 700 graduate students and interns from nearly one hundred countries (including the United States) who are pursuing studies at over fifty different institutions. All the rooms at I-House are single-occupancy, with shared bathroom facilities and no cooking permitted in resident rooms. To apply for housing at I-House, students must fully and accurately complete both the UAH application and the I-House application. I-House applications must be mailed directly to the Admissions Office, International House, 500 Riverside Drive, New York, NY 10027. Inquiries may be made to 212-316-8436.

Alumni Association

The Alumni Association is governed by an alumni-elected Board of Directors comprised of members-at-large and executive officers. It meets bimonthly and sponsors a biennial conference focusing on a topic of professional interest to alumni and students. Recently merged with the Alumni Association of the Columbia College of Pharmaceutical Sciences, this enhanced association also works as a resource for the OCS, providing mentoring and networking support.

Housed in the External Affairs Office of the Dean, the Alumni Office is an administrative office of the School that serves as a liaison between the School and its alumni and friends. The office coordinates services and activities promoting a continued awareness of programs of the School and facilitating alumni involvement in the support of the School. A reception for alumni and friends is held at the annual meeting of the American Public Health Association (APHA). Without charge and open to all interested parties, the reception provides an excellent opportunity to reconnect with alumni, friends, and colleagues and is also a wonderful networking vehicle.

The office also coordinates efforts to identify and recognize alumni for professional achievements and community services.

For additional information, please contact the Director of Alumni Affairs at 212-305-6083 or vc7@columbia.edu.

Other University Services

All students enrolled in the School are entitled to the privileges and use of facilities of the Health Sciences campus as well as the Morningside campus at Broadway and 116th Street. The information below highlights some of the services and benefits available to Public Health students. For a complete guide to University student services, visit the *FACETS* Web site: <http://www.columbia.edu/cu/facets/>.

OFFICE OF DISABILITY SERVICES

The mission of the Columbia University Office of Disability Services is to promote a philosophy enabling students with disabilities to realize and maximize their academic and personal potential through an emphasis on abilities, independence, and dignity by facilitating students' integration into all aspects of campus life.

In keeping with this mission, the Columbia University Office of Disability Services surveys and determines the specific needs of students with disabilities and develops and implements programs and policies to meet those needs on the undergraduate and graduate level.

The office serves students within all Columbia University schools and departments, working with each student, his or her school, campus offices, and departments to address his or her needs. In addition, the office serves as a resource center to the entire campus community on disability services and issues within the University and metropolitan area.

Any student with a disability that affects his or her housing needs is urged to apply for housing as early as possible and to indicate their disability on the application. These students must contact the Disabled Student Services liaison in their school.

The Columbia University Office of Disability Services is involved in ongoing outreach to members of the campus community, including students, faculty, and staff, in an effort to support students with disabilities as well as to promote an environment of understanding and appreciation for people of all backgrounds and abilities.

The Columbia University Office of Disability Services provides a variety of services, programs, and resources to allow students with disabilities full participation in the academic and campus experience. Students are expected to identify their disability and to provide current and appropriate medical or diagnostic documentation before any accommodations can be considered. In cases involving students with learning disabilities, appropriate documentation must provide a current assessment of the student's adult level of learning skills and style and must include a report summary and complete test battery scores. To allow sufficient time for review of needs and implementation of accommodations, students with disabilities are encouraged to contact Disability Services upon acceptance to discuss their specific disability needs and to plan any academic accommodations that may be necessary.

More information about the Office of Disability Services and its programs and services can be found at <http://www.health.columbia.edu/ods/index.html> or by e-mailing disability@columbia.edu or contacting Columbia University Office of Disability Services, 802 Lerner, Mail Code 2605, 2920 Broadway, New York, NY 10027; 212-854-2388 (voice); 212-854-2378 (TDD); 212-854-3448 (fax).

INTERNATIONAL STUDENTS AND SCHOLARS OFFICE

Columbia University, continuing its tradition as a preeminent world center of learning, welcomes more than 6,000 students and scholars from nearly 150 countries and offers its international clientele an array of services through the International Students and Scholars Office (ISSO). ISSO staff assist international students and scholars with their questions about University policies and practices, admission and placement, regulatory and documentation matters, social and cultural activities, adjustment to a new academic and cultural environment, and personal and family services and needs. The ISSO provides a central advisement service to Columbia Schools, faculty, and departments for the evaluation of credentials of students who have studied in another country. Acting on behalf of the Office of the Provost and Dean of Faculties, the ISSO administers the designation of visiting scholars and scientists and provides services supporting and promoting international educational exchange.

The ISSO administers immigration services for Columbia University's international students and faculty, researchers, and visiting scholars. Advisory staff is available to help students and scholars obtain and maintain their immigration status so that immigration issues remain routine and secondary, and they are able to devote their full energies to their scholarly goals. The ISSO monitors regulations affecting relevant immigration classifications and broadcasts timely alerts and updates to students (ISSOnews) and scholars (SCHOLARnews). Detailed information on immigration procedures and benefits is available at the ISSO and is maintained on the ISSO Web site at <http://www.columbia.edu/cu/isso>.

The ISSO offers orientation programs in which members of Columbia's international community have the opportunity to meet and receive informational briefings. Orientation sessions are provided throughout the academic year for visiting scholars and faculty.

International students are offered fall and spring orientation programs at which they are met by peer advisers eager to share the insights they have gained in making successful adjustments to Columbia's social and academic environment. The ISSO leads new arrivals in Celebrating New York, offering an array of opportunities to explore and enjoy the city during the September Orientation period. Learning and travel continues throughout the year as the ISSO's Road Scholars program introduces students and scholars to Niagara Falls and Toronto, Washington, D.C., New England, and the South. Each September and January wives and husbands of international students and scholars are greeted at a luncheon for spouses and their children hosted by ISSO staff members and "old-timers" eager to make them feel welcome. This begins a series of programs that extends

through the semester to provide both practical information and an opportunity to develop a network of friends and helpers. Programs scheduled throughout the year focus on practical issues of public speaking, writing, improving reading comprehension, time and stress management, employment, and job-seeking skills. The ISSO also offers an annual series of workshops on international taxation, presented by certified public accountants, and on advanced immigration matters, presented by nationally recognized attorneys. Social and cultural activities are an important part of life at Columbia. The ISSO staff presents a full calendar of events of interest to international students and scholars. The calendar includes regular features as well as programs that reflect the talents and interests of an international community. For more information, visit the ISSO Web site: <http://www.columbia.edu/cu/isso/>.

OFFICE OF SEXUAL MISCONDUCT PREVENTION AND EDUCATION

The Office of Sexual Misconduct Prevention and Education (OSMPE) oversees policy adjudication and preventive education for the Columbia University community with regard to sexual misconduct. OSMPE's education initiatives focus on informing students about community standards of appropriate sexual conduct, training administrators regarding the policy and appropriate referral practices, and creating mechanisms for comprehensive statistical collection from all University offices with significant responsibility for student and campus activities. Use of the sexual misconduct adjudication process is an option for undergraduate and graduate students. If a situation does not fall within the scope of OSMPE's services or a student chooses not to utilize the sexual misconduct adjudication procedure, OSMPE staff will make referrals to other service providers on and off campus. For further information, visit the OSMPE Web site: <http://www.columbia.edu/cu/sexualmisconduct/>.

OMBUDS OFFICE

The Ombuds Officer is a neutral complaint-manager who seeks fair and equitable solutions to problems for anyone in the Columbia University community. In considering any given instance or concern, the rights of all parties that may be involved, along with the welfare of the University, are taken into account. Discussions with an Ombuds Officer are off-the-record and do not constitute formal notice to the University. Except in emergencies, an Ombuds Officer does not take action or investigate an issue without the permission of the person who introduced the information to the Ombuds Office. Ombuds Officers will listen, offer information about Columbia University policies and procedures, present a range of options for resolving a problem, or help find ways to convey information while maintaining the confidentiality of the source. The Ombuds Office supplements, but does not replace, the existing resources for conflict resolution and fair practice available at Columbia University. The Ombuds Office is independent of existing administrative structures and reports directly to the President of the University.

Students on the Health Sciences campus can arrange meetings in the Ombuds Office on either the Morningside or Health Sciences campus. For further information, contact the Ombuds Office in 660 Schermerhorn Extension; telephone: 212-854-1234; fax: 212-854-6046; e-mail: ombuds@columbia.edu.

On Wednesdays an Ombuds Officer is at the Health Sciences campus office, 101 Bard Hall, 50 Haven Avenue; telephone: 212-304-7026.

EARL HALL CENTER

The Earl Hall Center sponsors programs that address the spiritual, religious, and humanitarian concerns of the community and serves students, staff, faculty, and alumni from all schools of Columbia University. Earl Hall is the home of more than fifty campus student groups, the United Campus Ministries (Jewish, Catholic, Muslim, and Protestant chaplaincies), and Community Impact. Community Impact offers students the opportunity to work with and in the surrounding neighborhoods by creating and running programs for disadvantaged youths, the elderly, and the homeless, as well as for adults studying for their high school equivalency diplomas. Earl Hall's other groups bring diversity and dialogue to the campus through a variety of programs ranging from lectures to dances to coffeehouses. The center also administers St. Paul's Chapel, an architectural jewel and a New York City landmark that serves as a popular site for weddings and concerts.

SHUTTLE SERVICE

The University provides a shuttle service between the Health Sciences campus and Morningside campus, free to anyone with a University ID. Schedules are available in the Office of Student Affairs.

DODGE PHYSICAL FITNESS CENTER

The Dodge Physical Fitness Center on the Morningside campus has courts available for squash, handball, and racquetball; an indoor jogging track; weight room; and swimming pool. The center offers a range of noncredit physical education courses and sponsors club sports. Additional athletic facilities, including an all-weather track and a Tennis Center, are available at the Baker Field Athletic Complex at 218th Street and Broadway. There is an additional fee for Health Sciences campus students to use the athletic facilities on the Morningside campus.

Campus Security

Located in New York City, Columbia University offers the advantages and disadvantages of life in a major metropolitan area, and Columbia has made the safety and well-being of members of its community—more than 19,000 students and 13,500 staff and faculty—a top priority.

Crime prevention is a major focus of the University Security Department. Safety and security information and training is continuously provided to students, staff, and faculty through presentations to campus groups and organizations, pamphlets, bulletins, crime alerts, and through the University student handbook, *FACETS*.

All Columbia campuses and their environs are patrolled by motorized and foot patrols that are coordinated with neighborhood security organizations as well as the security departments of New York-Presbyterian Hospital and other affiliated institutions. The department also maintains an excellent liaison with the local police precincts. The Health Sciences Security Department provides an escort service within the Columbia Presbyterian Medical Center area. A shuttle service is also available during stated hours between the Health Sciences and Morningside campuses.

The Health Sciences Security Office is located at 650 West 168th Street, New York, NY 10032; telephone: 212-305-8100. The Morningside Heights Security Office is at 111 Low Library, 535 West 116th Street, New York, NY 10027; telephone: 212-854-2796; emergency number: 212-854-5555.

The University is required by federal law to publish an annual security report containing information with respect to campus security policies and statistics on the incidence of certain crimes on and around our campuses. This information is available in *FACETS*, the University student handbook (<http://www.columbia.edu/cul/facets/>), or at the Web site for the United States Department of Education (<http://ope.ed.gov/Security/search.asp>), or by requesting a copy of the report from: Campus Crime Report, Department of Security, Columbia University, 111 Low Library, Mail Code 4301, 535 West 116th Street, New York, NY 10027.

American Public Health Association

The American Public Health Association (APHA) is the major professional organization for the public health field. The Association holds an annual scientific meeting each fall that draws over 10,000 national and international participants. Students are urged to become members. Membership includes a subscription to the *American Journal of Public Health*, a peer-reviewed journal devoted to research, scientific studies, and in-depth information on issues affecting public health; opportunities to interact with other professionals in the field; and job placement services. Information on membership is available from the Office of Student Affairs or from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710; 202-777-2742; <http://apha.org/>.

Official Regulations*

Reservation of University Rights

This bulletin is intended for the guidance of persons applying for or considering application for admission to Columbia University and for the guidance of Columbia students and faculty. The bulletin sets forth in general the manner in which the University intends to proceed with respect to the matters set forth herein, but the University reserves the right to depart without notice from the terms of this bulletin. The bulletin is not intended to be and should not be regarded as a contract between the University and any student or other person.

University Regulations

According to University regulations, each person whose registration has been completed will be considered a student of the University during the term for which he or she is registered unless the student's connection with the University is officially severed by withdrawal or otherwise. No student registered in any school or college of the University shall at the same time be registered in any other school or college, either of Columbia University or of any other institution, without the specific authorization of the dean or director of the school or college of the University in which he or she is first registered.

The privileges of the University are not available to any student until he or she has completed registration. A student who is not officially registered for a University course may not attend the course unless granted auditing privileges. No student may register after the stated period unless he or she obtains the written consent of the appropriate dean or director.

The University reserves the right to withhold the privilege of registration or any other University privilege from any person with an unpaid debt to the University.

ATTENDANCE

Students are held accountable for absences incurred owing to late enrollment.

RELIGIOUS HOLIDAYS

It is the policy of the University to respect its members' religious beliefs. In compliance with New York State law, each student who is absent from school because of his or her religious beliefs will be

given an equivalent opportunity to register for classes or make up any examination, study, or work requirements that he or she may have missed because of such absence on any particular day or days. No student will be penalized for absence due to religious beliefs, and alternative means will be sought for satisfying the academic requirements involved.

Officers of administration and of instruction responsible for scheduling of academic activities or essential services are expected to avoid conflict with religious holidays as much as possible. If a suitable arrangement cannot be worked out between the student and the instructor involved, they should consult the appropriate dean or director. If an additional appeal is needed, it may be taken to the Provost.

Academic Discipline

The continuance of each student upon the rolls of the University, the receipt of academic credits, graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University.

Rules of University Conduct

The Rules of University Conduct (Chapter XLI of the Statutes of the University) provide special disciplinary rules applicable to demonstrations, rallies, picketing, and the circulation of petitions. These rules are designed to protect the rights of free expression through peaceful demonstration while at the same time ensuring the proper functioning of the University and the protection of the rights of those who may be affected by such demonstrations.

The Rules of University Conduct are University-wide and supersede all other rules of any school or division. Minor violations of the Rules of Conduct are referred to the normal disciplinary procedures of each school or division ("Dean's Discipline"). A student who is charged with a serious violation of the Rules has the option of choosing Dean's Discipline or a more formal hearing procedure provided in the Rules.

All University faculty, students, and staff are responsible for compliance with the Rules of University Conduct. Copies of the full text are available in *FACETS*, the University student handbook (<http://www.columbia.edu/cu/facets/>), and at the Office of the University Senate, 406 Low Memorial Library.

*Since policies and procedures are subject to change, please check the Web site for *FACETS*, the University student handbook (<http://www.columbia.edu/cu/facets/>), for the most current information.

Statement of Nondiscriminatory Policies

The University is publishing the following statements in accordance with certain federal, state, and local statutes and administrative regulations.

Currently, federal, state, and local laws, regulations, and policies protect against discrimination and harassment on the basis of race, color, sex and/or gender, religion, national and ethnic origin, age, citizenship, the actual or perceived status of an individual as a victim of domestic violence, disability, marital status, sexual orientation, and status as a Vietnam era or disabled veteran.

Consistent with the requirements of Title IX of the Education Amendments of 1972, as amended, and regulations thereunder, the University does not discriminate on the basis of sex in the conduct or operation of its education programs or activities (including employment therein and admission thereto). Inquiries concerning the application of Title IX may be referred to Susan Rieger, Associate Provost of the University's Office of Equal Opportunity and Affirmative Action (103 Low Memorial Library, Mail Code 4333, 535 West 116th Street, New York, NY 10027; telephone: 212-854-5511), or to the Director, Office for Civil Rights (Region II), 26 Federal Plaza, New York, NY 10278.

Columbia University admits students of any race, color, national and ethnic origin, and age to all the rights, privileges, programs, and activities generally accorded or made available to students at the University. It does not discriminate against any person on the basis of race, color, national and ethnic origin, or age in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other University-administered programs.

Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination against any person on the basis of race, color, or national origin in programs or activities receiving federal financial assistance. Title VII of the Civil Rights Act of 1964, as amended, prohibits employment discrimination against any person because of race, color, religion, sex, or national origin. Executive Order 11246, as amended, prohibits discrimination in employment because of race, color, religion, sex, or national origin and requires affirmative action to ensure equality of opportunity in all aspects of employment. In addition, the New York State Executive Law, Article 15, Section 296, prohibits discrimination against any person in employment because of age, race, creed, color, national origin, disability, sex, marital status, and genetic predisposition or carrier status.

Consistent with the requirements of Section 504 of the Rehabilitation Act of 1973, as amended, and regulations thereunder, the University does not discriminate against any person on the basis of disability in admission or access to, or employment or treatment in, its programs and activities. Section 503 of the Rehabilitation Act of 1973, as amended, requires affirmative action to employ

and advance in employment qualified workers with disabilities. The Americans with Disabilities Act of 1990 also prohibits discrimination in public accommodation and in employment against qualified persons with disabilities. It requires the University to provide qualified applicants and employees with reasonable accommodations that do not impose undue hardship.

The Equal Pay Act of 1963 prohibits discrimination on the basis of sex in rates of pay. The Age Discrimination in Employment Act of 1967, as amended, prohibits discrimination in employment on the basis of age. The Age Discrimination Act of 1975 prohibits discrimination on the basis of age in programs and activities receiving federal financial assistance.

The New York State Education Law, Title I, Article 7, Section 313, as amended, prohibits educational institutions from discriminating against persons seeking admission as students to any institution, program, or course because of race, religion, creed, sex, color, marital status, age, or national origin. The New York City Human Rights Law, Title 8, Section 8-107, makes it an unlawful discriminatory practice for an employer to discriminate against any person because of their age, race, creed, color, national origin, gender, disability, marital status, sexual orientation, alienage or citizenship status, or status as a victim of domestic violence. It also prohibits educational institutions from discriminating against persons in any of the above categories in the provision of certain accommodations, advantages, facilities, or privileges.

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended (38 U.S.C. 4212), prohibits job discrimination and requires affirmative action to employ and advance in employment qualified special disabled veterans and veterans of the Vietnam era.

To help clarify what is unlawful sexual harassment the Federal Equal Employment Opportunity Commission (EEOC) has issued Guidelines on the subject. While the EEOC Title VII Guidelines apply only to faculty and other employees, Title IX, administered by the U.S. Education Department's Office for Civil Rights (OCR), also protects students from sexual harassment. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature will constitute sexual harassment when:

1. submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment;
2. submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or,
3. such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance or creating an intimidating, hostile, or offensive academic or working environment.

All employees, students, and applicants are protected from coercion, intimidation, interference, or retaliation for filing a complaint or assisting in an investigation under any of the foregoing policies and laws.

The University's Office of Equal Opportunity and Affirmative Action has been designated to coordinate compliance activities under each of the programs referred to above. Any employee who believes that he or she has been denied equal opportunity should contact this office, which may informally investigate complaints and offer advice and counsel on questions relating to equal opportunity and affirmative action, including information about applicable formal grievance procedures and agencies where complaints may be filed.

Discrimination and Sexual Harassment Policy and Procedure

The University's Discrimination and Sexual Harassment Policy and Procedure is available to enrolled students who feel that they have been sexually harassed and/or discriminated against on the basis of race, color, religion, national or ethnic origin, sex, sexual orientation, marital status, age, disability, citizenship, the actual or perceived status of an individual as a victim of domestic violence, or Vietnam era or qualified special disabled veteran status. A copy of the Policy and Procedure is available in *FACETS*, the University student handbook, and in the Office of Equal Opportunity and Affirmative Action, 103 Low Memorial Library; telephone: 212-854-5511.

A complaint may be brought by filing a written complaint with Susan Rieger, the Associate Provost in charge of the University's Office of Equal Opportunity and Affirmative Action (the "Equal Opportunity Officer"), 103 Low Memorial Library, 212-854-5511. A complaint shall be brought within 180 working days after the occurrence of the alleged unlawful discrimination. Where a complaint is not timely filed, however, the Equal Opportunity Officer may determine that special circumstances exist that excuse the delay and consider the complaint as timely filed.

CHARGE OF THE UNIVERSITY PANEL ON DISCRIMINATION AND SEXUAL HARASSMENT

The Columbia Panel on Discrimination and Sexual Harassment is composed of trusted, accessible, and sympathetic members of the University community who act as informal mediators. Their goal is the protection and counsel of any member of the University who is made to feel personally pressured or uncomfortable because of the behavior of another University member. Members of the Panel provide a safe, impartial, nonadversarial setting in which the problem can be considered or solved through confidential counseling and, when requested, mediation between the complainant and the alleged harasser. The Panel thus provides guidance and protection for the accused as well, identifying false or mistaken accusations, misunderstandings, or unconscious behavior. Panel members are also a link through which the University can take account of, and take appropriate action against, those on campus who are behaving

illegally. The Panel on Discrimination and Sexual Harassment is a timely, protective, and compassionate arm of the University, one that not only sensitizes and educates the University community but also demonstrates the University's commitment to fair treatment of all its members. Names and contact information for members of the Columbia Panel on Discrimination and Sexual Harassment can be found in Appendix E of *FACETS*, the University student handbook, or by contacting the Office of Equal Opportunity and Affirmative Action.

Romantic Relationship Advisory Statement

Columbia University's educational mission is promoted by the professionalism in its faculty-student and staff-student relationships. Faculty and staff are cautioned that consensual romantic relationships with student members of the University community, while not expressly prohibited, can prove problematic. While some relationships may begin and remain harmonious, they are susceptible to being characterized as non-consensual and even coercive. This sometimes occurs when such a relationship ends, and is exacerbated by the inherent power differential between the parties.

A faculty or staff member involved in a consensual relationship with a student is expected to remove him/herself from academic or professional decisions concerning the student. This expectation arises because the relationship may impair, or may be perceived as impairing, a faculty or staff member's ability to make objective judgments about that student.

The Provost has authorized some departments to adopt more restrictive policies, given the special nature of the relationship between their students and faculty or staff. Individuals are, therefore, encouraged to contact their department head if they have any questions about whether a more restrictive policy applies to them. Departments that wish to establish more restrictive policies should contact Susan Rieger before implementation.

Should a romantic relationship with a student lead to a charge of sexual harassment against a faculty or staff member, the University is obligated to investigate and resolve the charge in accordance with its Discrimination and Sexual Harassment Policy and Procedure.

Questions regarding this Advisory Statement may be directed to Susan Rieger, Office of Equal Opportunity and Affirmative Action, 103 Low Memorial Library, Mail Code 4333, 535 West 116th Street, New York, NY 10027; 212-854-5511.

The Federal Family Educational Rights and Privacy Act (FERPA)

The University abides by the provisions of the Federal Family Educational Rights and Privacy Act of 1974. This act insures a wide range of rights, including but not limited to: information about student records that the University maintains, who maintains them, who has access to them, and for what purposes access is granted. The act also permits the University to release "directory information" without a student's consent. In addition, the act guarantees students access to their records and restricts the access of others.

Students who wish to restrict access to their directory information may do so on the Morningside campus at the Registrar's Office, 205 Kent; Health Sciences students may do so at the Registrar's Office located in 1-141 Black Building. These same offices can provide a set of guidelines and a policy statement. The guidelines are also available on ColumbiaWeb and in the current edition of *FACETS*. Questions about the interpretation of the guidelines should be referred to the University's General Counsel, 412 Low Memorial Library.

Sexual Misconduct Policy

On February 25, 2000, the University Senate adopted a Sexual Misconduct Policy and Disciplinary Procedure that can be used as an alternative to Dean's Discipline. The Sexual Misconduct Policy applies to all students in all schools of the University. The Disciplinary Procedure for Sexual Misconduct applies to all students, with the exception of those enrolled in the Law School, but including the students of Teachers College and Barnard College. The policy prohibits sexual misconduct by any student and provides for comprehensive education of students, faculty, and administrators about the issue of sexual misconduct.

Copies of the policy and procedure are available from the Office of Sexual Misconduct Prevention and Education, 703 Lerner, Mail Code 2617, 2920 Broadway, New York, NY 10027; telephone: 212-854-1717; fax: 212-854-2728; <http://www.columbia.edu/cu/sexualmisconduct/>. The policy and procedure can also be found in the Office of the Dean of Students of every school and in *FACETS*, the University student handbook.

POLICY

The University's Policy on Sexual Misconduct requires that standards of sexual conduct be observed on campus, that violations of these standards be subject to discipline, and that resources and structures be sufficient to meet the physical and emotional needs of individuals who have experienced sexual misconduct. Columbia

University's policy defines sexual misconduct as non-consensual, intentional physical conduct of a sexual nature, such as unwelcome physical contact with a person's genitals, buttocks, or breasts. Lack of consent may be inferred from the use of force, threat, physical intimidation, or advantage gained by the victim's mental or physical incapacity or impairment of which the perpetrator was aware or should have been aware.

COMPLAINT RESOLUTION OPTIONS

Three University-based options are available for resolution of complaints of sexual misconduct against a student:

1. Dean's Discipline within the school of the charged student;
2. mediation through an accredited mediator affiliated with the University, such as an Ombuds Officer; or
3. the University's Alternative Disciplinary Procedure for Sexual Misconduct.

Complaints may also be filed with the New York City Police Department.

Choosing to pursue a disciplinary action can be a difficult and confusing decision. The Office of Sexual Misconduct Prevention and Education is available to assist you in understanding your options for complaint resolution.

Complaints about non-student members of the University community should be directed to the Office of Equal Opportunity and Affirmative Action at Columbia, the Dean of Studies Office at Barnard, or the Office of the Associate Dean at Teachers College.

Fees, Expenses, Billing

Fees

The following fees, prescribed by statute, are in effect for the school year 2003-2004 and are subject to change at the discretion of the Trustees. Students should anticipate increases in later years.

University charges such as tuition and fees and residence halls are subject to a *FINANCE CHARGE* if not paid when due. Tuition and fees are due prior to registration by the third week in August for the fall term and by the first week in January for the spring term.

TUITION

For all courses, per point (subject to change)	\$ 950
Per term (at 15 points)	14,250
For practicum/residency the fee, per term, is	950

HEALTH SERVICE AND HOSPITAL INSURANCE FEES

Required for all full-time students (optional for half-time and part-time students):

The Student Health Service (SHS) fee schedule and the new Chickering Insurance premium rate for the academic year from August 17, 2003, to August 16, 2004, are listed as follows:

	SHS Fee	Chickering Rate	Total
Student	\$ 820	\$ 1,660	\$ 2,480
Student + Spouse or Domestic Partner	\$1,640	\$ 5,330	\$ 6,970
Student + Child(ren)	\$ 820	\$ 4,476	\$ 5,296
Student, Spouse/Partner + Child(ren)	\$1,640	\$ 8,146	\$ 9,786

Please note there is no Student Health Service Fee for child(ren) since complete health care is available through the Chickering medical insurance plan. Child(ren) coverage by Chickering for an enrolled student costs an additional \$2,816 annually. For additional information, please contact Student Health Services.

The student health service fee covers a comprehensive prepaid medical/surgical plan through the Health Sciences campus Student Health Service. The hospital insurance fee pays the annual premium for hospital coverage through Empire Blue Cross. Students who already carry hospital insurance may waive the fee upon presentation of proof of coverage during the open enrollment period (prior to September 30). Participation in these programs is compulsory for full-time students. Half-time and part-time students are encouraged to participate in the combined plan.

Upon payment of additional fees indicated above, students can also acquire the health service and hospital insurance coverage for their dependents. Enrollment in hospital insurance only is not permitted. Students should consult the Student Health Service for further information on dependent coverage.

There are two open enrollment periods when students elect or change coverage, generally during the months of September and January. Benefits are effective immediately after enrollment, without a waiting period. The Student Health Service Enrollment Office is at 60 Haven Avenue, 212-795-4181. For more information, read the Health Sciences campus Student Health Service brochure or check *FACETS* at Student Services On-Line.

APPLICATION FEE

Application for admission (nonrefundable) **\$60**

RESERVATION FEE

Fee for accepted applicant to hold a place in the entering class (nonrefundable). Applied toward tuition upon registration. **\$500**

STUDENT ACTIVITIES FEE

Per term **\$20**

COMPUTER ACCESS FEE

Per term **\$30**

TRANSCRIPT FEE

Applied one time at first registration.

No further fees will be charged for transcript requests. **\$45**

INTERNATIONAL STUDENT SERVICE FEE

For students on nonresident visas, per term **\$50**

LATE REGISTRATION FEES

During late registration **\$ 50**

After late registration **\$100**

WITHDRAWAL AND ADJUSTMENT OF FEES

With the passage of the Higher Education Amendments of 1992 (Public Law 102-325), the University is required to implement a refund policy for students who do not register or who withdraw or otherwise fail to complete an enrollment period. Refunds are a percentage of charges (including tuition, dining, and housing) assessed to the student based on the date of the student's last day of attendance (separation) as reported by the Dean of the School.

All students will be charged a withdrawal fee of \$75.

A refund calculation will be based on the last day of attendance; however, a student may be charged for services (e.g., housing, dining) utilized after the last day of attendance. These charges should not be paid with Title IV funds.

Certain fees are not refundable; fees for services used prior to withdrawal, for materials and equipment purchased, for services that continue to be available after withdrawal, and fees paid to outside entities generally will not be refunded. Fees not subject to refund include: health service, medical insurance/Blue Cross, course-related fees (labs, etc.), materials fee, international student services charge, late registration fee, late payment fee, finance charges, computer fee, withdrawal fee.

The refund percentage is as follows (prorated for calendars of different durations):

First week	100%	Sixth week	60%
Second week	90%	Seventh week	60%
Third week	80%	Eighth week	50%
Fourth week	80%	Ninth week	40%
Fifth week	70%	After ninth week	no adjustment

Students will not be entitled to any portion of a refund until all Title IV programs are credited and all outstanding charges have been paid.

Please note: A separate financial aid refund calculation will be made after tuition and fees have been adjusted.

Once calculated, financial aid refunds will be credited in the following order: Federal Stafford Loans, Federal Unsubsidized Stafford Loans, Federal Supplemental Loan to Students (SLS), Federal PLUS Loans (when disbursed through the University), Federal Perkins Loan, Federal Pell Grant Program, Federal Supplemental Educational Opportunity Grant Program, other Title IV programs, non-Title IV funds, and, finally, any remaining credit balance to the student.

All students withdrawing from their programs or taking a leave of absence must complete a Registration Withdrawal/Leave of Absence form, which must be signed by the Dean of Students and the Office of Student Administrative Services located at 1-141 Black Building.

Expenses

ESTIMATE OF EXPENSES

The following University estimates are provided as guidelines to aid the student in planning a nine-month budget for living and educational expenses while attending the School.

Living expenses (room, board, clothing, laundry, travel, sundries) for nine months are approximately \$14,815 for an individual student. For students planning to bring a spouse or children, estimates of additional expenses are \$700 monthly for spouse and \$350 monthly for each child, plus additional health and hospital insurance fees as indicated above.

Tuition. 2003–2004 tuition charges are \$950 per point. Full-time study entails 12 or more points per term. Half-time study entails 6 to 11 points per term.

Health service and hospital fees and other fees are described above.

The University advises students to open accounts in one of the local banks as soon as they arrive in New York City. Because it often takes as long as three weeks for the first deposit to clear, the student should cover immediate expenses by bringing traveler's checks or a draft drawn on a local bank. Students who expect to receive traineeship or scholarship support from Columbia University should be prepared to wait up to four weeks for the receipt of their initial stipend checks.

Billing and Payments

BILLING SCHEDULE

	Statement Issued	Payment Due
Fall Term	Third week of July	Third week of August
Spring Term	First week of December	First week of January

STUDENT ACCOUNT STATEMENT

Student Account Statements are mailed to students each time they are produced. Statements may also be viewed through Student Services On-Line.

The first Student Account Statement each term will include a section for all charges and credits that have occurred since the previous Statement was produced, as well as an "anticipated activity" section for the upcoming term. It will also include an "anticipated adjustment" section that requires students to calculate any charges that cannot be determined prior to registration.

After the Change-of-Program period, another Student Account Statement is produced that will include all charges and credits for the term, in the "current charges and credits" section. Federal and private student loans that have been processed by the Financial Aid Office (FAO), as well as payment plan funds that have not yet been received, will be reflected in the anticipated activity section.

Financial aid anticipated credits are temporary; they will either become actual when all requirements are met and will be listed with current activity, or they will expire (and will no longer appear as anticipated credits) after the term begins. When anticipated financial aid expires, students will be responsible for paying any balance on their account to avoid late payment charges.

Students who make program changes or have other added charges resulting in an increase in the amount due must pay the difference at the time of the change to avoid late payment charges. Students admitted to the University after the first Student Account Statement for the term has been produced must pay tuition and other charges at the time of registration.

SUBSEQUENT STATEMENTS

Charges that are incurred over the course of the term will be billed in the cycle in which they are incurred.

A Student Account Statement is sent each cycle in which there is current activity (a new charge or credit to the account), if there has been an adjustment to the account from the previous billing cycle (a revised charge or revised credit), or if a debit or credit balance remains on the account.

BILLING ADDRESS

Student Account Statements are produced in the student's name but may be mailed to any one address that is designated as the "billing address," such as the permanent, local, or special address. A student's permanent address will be used unless the student changes the designated billing address by contacting the FAO at 212-305-4113 or sphfinaid@columbia.edu.

PAYMENT METHODS

Payment may be made by check (which must be in U.S. currency drawn on a U.S. bank), money order, cash, traveler's checks, wire transfers, automatic withdrawal from a bank account (ACH), or

credit card (through an outside vendor). All payments should be made payable to Columbia University and mailed to the lockbox indicated on the Student Account Statement. Payments by mail must be received, not simply postmarked, by the due date in order to avoid late payment charges. Please note: The lockbox is a processing center and cannot accept any mailing that requires a signature for receipt.

Wire transfers must include the student's name and Social Security number or nine-digit Columbia University identification number, in addition to the notation "tuition payment" in the detail field. Failure to do so by the sending bank will delay or prevent the posting of payments to a student account.

ACH payments may be made through the OSFS Web site:
<http://www.columbia.edu/cu/sfs/>.

Beginning August 1, 2001, University cashiers were no longer able to accept credit cards for student account payments. In order to permit this option, however, the University has contracted with an outside vendor to perform this service. The vendor will charge a convenience fee based on the amount of the payment. Additional information and the convenience fee may be viewed on the OSFS Web site given above. This method allows students to pay either by telephone or online.

REFUNDS

If a student account has a credit balance, the student may be entitled to a refund. Refunds are not issued on any anticipated credits, only on actual credits. All charges incurred after a refund is received must be paid by the student. A student who wishes to apply for a refund should contact Student Administrative Services or visit Student Services On-Line at <http://www.columbia.edu/cu/students/>.

DELINQUENT ACCOUNTS

Students with a past-due student account balance may be prohibited from registering and/or changing programs, or from receiving a diploma or transcript. If you have questions regarding an outstanding student account balance, please call Student Administrative Services.

Columbia University may utilize the services of an attorney and/or collection agent to collect any amount past due. If an account is referred for collection, the student may be charged an additional amount equal to the cost of collection, including reasonable attorney's fees and expenses incurred by Columbia University.

Financing Your Education

Financial Aid Opportunities

All students interested in applying for financial aid are urged not to wait until an offer from the Admissions Office has been made.

Most students finance their education through a combination of student loans (federal and private), grants, and their own resources.

How to Apply for Financial Aid

In order to determine eligibility for federal aid, and for the institutional aid administered by the Financial Aid Office (FAO), complete and submit the following documents:

1. **Free Application for Federal Student Aid (FAFSA).** A paper form is available from the FAO, or it can be obtained from a local college or university, or it may be completed online at <http://www.fafsa.ed.gov>. The school code for the MSPH is E00127. This form is to be mailed directly, or transmitted electronically, to the federal processor. Mailing information is listed on the FAFSA. Once the information is processed, it is transmitted to the school electronically.
2. **Federal Income Tax Return.** A signed copy of the most recent federal income tax return should be mailed or faxed to our office (if you did not file you can indicate so on the C.U. Financial Aid Application).
3. **C.U. Financial Aid Application.** A paper copy of this application can be obtained from the FAO, or it can be downloaded from the following Web site: <http://mailman.hs.columbia.edu/financialaid/index.html>. This form should be mailed or faxed to the FAO.
4. Some of our scholarships require an **additional application**; please refer to "Scholarships, Fellowships, Traineeships" (below) for scholarship applications and information.

If all of this information has been received at the time of admission, students receive a financial aid award letter with their offer of admission, or shortly thereafter.

Mailing and faxing information:
Financial Aid Office
Mailman School of Public Health
Columbia University
722 West 168th Street, Room 1030
New York, NY 10032
Fax: 212-342-1861

FEDERAL LOAN PROGRAMS

The **Subsidized Stafford Loan** is a federally insured, federally subsidized loan from a bank, credit union, or other participating lender. The maximum amount a student may borrow for an academic year (i.e., summer, fall, and spring) is \$8,500. Repayment of interest and principal is usually deferred until after the student is no longer registered at least half time (i.e., 6 points). Applications are available from participating lenders, and in the FAO for certain lenders.

The **Unsubsidized Stafford Loan** is available to eligible students enrolled at least half time, regardless of income. Students are charged interest immediately upon disbursement of the loan until it is paid in full. The applicable rate of interest is variable, adjusted annually on July 1, not to exceed 8.25 percent. Graduate students enrolled at least half time are eligible to borrow up to \$10,000 per academic year. Graduate students who have not earned an M.D. or D.D.S. and who are enrolled full time (i.e., at least 12 points per semester) are eligible for an additional \$12,500 per academic year (for a total of \$22,500). The cumulative maximum for a borrower is \$189,125 (only \$65,000 of this amount may be in subsidized loans). Students whose need is less than the annual loan limits for the Federal Subsidized Stafford Loan will be able to borrow up to those loan limits under the Unsubsidized Stafford Loan Program.

The **Federal Perkins Loan** is awarded to students who show exceptional need—as determined by the Free Application for Federal Student Aid (FAFSA). Repayment of interest and principal is deferred while the student is registered at least half time.

Eligibility requirements for ALL federal loan programs:

- U.S. citizen, U.S. permanent resident, or eligible non-citizen (e.g., political refugee)
- Enrolled for at least half time in a program leading to a degree and maintaining satisfactory academic progress
- Completed FAFSA for the academic year in question, with our school code, E00127
- Any other additional documents requested in order to complete the financial aid file (e.g., copy of the most recent federal income tax return, C.U. Financial Aid Application)

NOTE: Students wishing to have loan deferment forms completed should bring them to the Office of Student Administrative Services only after registering.

SCHOLARSHIPS, FELLOWSHIPS, TRAINEESHIPS

Community Scholars Program. This program is available to students accepted in the Department of Sociomedical Sciences. It provides 50 percent tuition scholarship to students selected on a competitive basis. Community Scholars must demonstrate a commitment to serving underserved populations. A separate application is required, and students are expected to have completed the financial aid application. For further information, contact the department at 212-305-0541.

Werner and Elaine Dannheisser Scholarship. Established by the Werner and Elaine Dannheisser Trust, this is a need-based scholarship for a student in the Department of Sociomedical Sciences' Aging and Public Health track. Applicants must complete the application for financial aid. No separate application is needed.

W.E.B. DuBois Scholarship. Awarded to an incoming African-American M.D. or an African-American M.D. student pursuing a degree in public health, this scholarship was made possible by a gift from Albert Delacorte. Applicants must complete the application for financial aid. No separate application is needed.

Fund for Public Health Leadership. Funded by the School's alumni, faculty, and friends, this fund supports need-based scholarships. Applicants must complete the application for financial aid. No separate application is needed.

Sheila Gorman Scholarship. This is a need-based scholarship for an incoming student in the Executive Program or the Health Policy and Management academic department. It is funded by the family, friends, students, and colleagues of retired faculty member Sheila Gorman, Ph.D., in honor of her career at the Mailman School of Public Health.

Sam Greenberg Scholarship. This is a need-based scholarship, funded by the Alumni Association of the Columbia College of Pharmaceutical Sciences in memory of Pharmacy graduate Sam Greenberg, '28. Applicants must complete the application for financial aid. No separate application is needed.

Latino Fellowship Program. The goal of the Latino Fellowship Program is to increase the representation of Latinos in the public health workforce, particularly early career professionals who are committed to addressing the health disparities confronted by a large and growing Latino population in the United States. Two fellowships are offered each year. Eligible applicants are of Latino heritage, hold a bachelor's degree, are conversant in Spanish, and are early career professionals with prior work experience with Latino communities in the United States or in countries with a large influx of Latino immigrants to the United States. Individuals with advanced degrees (M.D., Ph.D.) are not generally considered good candidates for the fellowship. Applicants must demonstrate a commitment to working with Latino populations in the United States following completion of the degree. For more information including application materials, see <http://cpmcnet.columbia.edu/dept/sph/popfam/teach/hfp.html>. Admission to the School requires a separate application, and only individuals admitted to the Heilbrunn Department of Population and Family Health's Program on Reproductive, Adolescent, and Child Health will be considered for the fellowship.

Macy Scholars M.D./M.P.H. Program. Students completing their third year of medical school at one of the six participating medical schools in New York City can apply for a fully funded fifth year of study as a Macy Scholar. This 45-point Master of Public Health

degree program is a collaborative effort of the School and the Josiah Macy, Jr. Foundation, which provides the funding for this program. A maximum of twelve Macy Scholars will be able to select a specialization from several departmental programs offered by the School. The program begins in July, at the end of the third year of medical school. For further information, contact the Macy Scholars program coordinator at 212-305-3934 or visit <http://www.mailman.hs.columbia.edu/hpm/macy.html>.

Mayor's Graduate Scholarship Program. Employees of the Department of Citywide Administrative Services in the City of New York are eligible to apply for this scholarship program. The program provides a tuition scholarship that covers half of the tuition up to 3 tuition points per semester, depending upon which is less. Mayor's Graduate Scholars continue their employment while participating in this program. A separate application is needed; it is available from: Mayor's Graduate Scholarship Program, 1 Centre Street (Room 2435), New York, NY 10007.

Doris Nickerson Scholarship. This scholarship was made possible by a gift from Ronald Lauterstein, '58, in honor of his late wife, Doris Nickerson. An award is made to a Canadian resident, with a preference given to a Canadian public health nurse.

Pharmacy Alumni Scholarship. Endowed by the alumni of Columbia College of Pharmaceutical Sciences, this is a need-based scholarship. Applicants must complete the application for financial aid. No separate application is needed.

The Phoenix Fellowship Program. This program provides a fellowship to students who demonstrate financial need and who are interested in gaining research experience with historically underserved communities. The fellowship is awarded to full-time master's-level students who have overcome obstacles that impeded their academic progress and/or meet income-specific criteria. It covers 24 points and it is nonrenewable. A separate application is required, and students are expected to have completed the financial aid application. A copy of this application can be obtained from the FAO.

Public Health Scholars Fund. This is a need-based scholarship that was established by James T. Harden, M.P.H. '83, chairman of the Mailman School of Public Health Board of Advisors. Applicants must complete the application for financial aid. No separate application is needed.

Public Health Scholars Program. This program provides tuition scholarship of 25 to 75 percent, depending on salary, to employees of the New York City Department of Health, or the New York State Department of Health. Up to five Public Health Scholars are selected each academic year. Eligible applicants for this program must have been accepted for admission to a degree program in the Mailman School of Public Health. Public Health Scholars continue their employment while participating in this program. A separate application is needed; it is generally available from either the New York City Department of Health at 212-693-1307; or from the New York City Regional Office, New York State Department of Health, at 212-268-6437.

Rudin Scholars in Public Health. Supported by New York City philanthropist Jack Rudin and the May and Samuel Rudin Foundation, this is a need-based scholarship awarded to four students every year. Recipients will be chosen based on their demonstrated commitment to the health of New York City. Applicants must complete the application for financial aid. No separate application is needed.

Peter Jay Sharp Scholarship. This is a merit-based scholarship established with a gift from The Peter Jay Sharp Foundation, in memory of Peter Jay Sharp. It provides a nonrenewable \$25,000 scholarship to four incoming full-time M.P.H. students every year. Awardees are selected on the basis of their public health career potential, demonstrated leadership ability, prior public health work experience, community advocacy experience, and other criteria. No separate application is needed. Awardees are notified early in the spring.

The Ray E. Trussell, M.D., Fellowship. This provides partial tuition for a full-time student pursuing an M.P.H. or an Executive M.P.H. in public health with a concentration in substance abuse treatment. Eligible candidates must have proven training in psychiatry and substance abuse treatment and/or equivalent experience. Mental health and substance abuse treatment professionals are encouraged to apply. This fellowship was established by Dr. Elizabeth Trussell in honor of her late husband, Ray E. Trussell, M.D., dean of the Mailman School of Public Health from 1955 to 1968. Applicants must complete the application for financial aid. Please refer to "How to Apply for Financial Aid" for application instructions. Please contact the FAO for further information.

University General Income Scholarship. This is a need-based scholarship awarded by the School. A Free Application for Federal Student Aid (FAFSA) is required in addition to other requirements listed under "How to Apply for Financial Aid." Please be advised that there are only a limited number of scholarships and that they are awarded on the basis of need as determined by the FAFSA. All students who apply for financial aid are considered for this award.

U.S. Public Health Traineeship Award. This program is sponsored by the United States Public Health Service for matriculated students (full time, at least 12 points). A limited number of traineeships are available, based on need, to students entering an academic program identified as a severe shortage area, i.e., epidemiology, biostatistics, environmental health sciences, health policy and management, and sociomedical sciences. No separate application is required. All students who apply for financial aid are considered for this award.

Julia B. Wasserman Scholarship. This is a need-based scholarship, established by Julia Wasserman, '88. Applicants must complete the application for financial aid. No separate application is needed.

Wyman Scholarship. This is a need-based scholarship that was funded by the late Rita F. Wyman in memory of her husband, Dr. Randolph A. Wyman, a former member of the School's faculty. Applicants must complete the application for financial aid. No separate application is needed.

There are also a limited number of fellowships, scholarships, and traineeships for pre- and/or postdoctoral study available on a competitive basis. Awards may include tuition and stipend. Information about the fellowships and training programs in specific research areas is available in several departments.

OTHER SOURCES OF FINANCING

Monthly Tuition Payment Plan. The Columbia Payment Plan allows all students to pay for tuition and fees through *interest-free* equal installment payments instead of making a lump-sum payment at the beginning of each academic term. *Only education expenses that are billed through the student's account* at Columbia University, including tuition and other fees, are covered through this plan. Personal expenses such as off-campus housing, travel, and entertainment may not be included.

Students may sign up for an entire academic year or for one term only. The deadline for enrolling in the annual or fall plan is August 31, and for the spring plan, December 31. Late applications may be accepted, but past-due payments must be made.

Installment payments begin on July 1 for the annual plan or fall term only; December 1 for spring term only. Payments are made directly to AMS, the organization handling the Columbia Payment Plan. Students can call AMS at 800-635-0120 to enroll by phone or enroll online at <http://www.tuitionpay.com/>.

New York State Tuition Assistance Program (TAP). Any student who is a legal resident of New York State and a full-time degree candidate is eligible to apply for a TAP award. All students interested in TAP must first complete a FAFSA. New York State will then send a TAP application. The award is based on New York State net taxable income. For further information, please visit New York State Higher Education Services Corporation's (HESC's) Web site at <http://hesc.state.ny.us/>.

Private Educational Loans. There are a number of private loan programs that are available to students based on creditworthiness. For additional information on some of these options, please visit the Student Financial Services Web site at <http://www.columbia.edu/cu/sfs/>.

Veteran Benefits. A veteran of the armed forces who has served on active duty for at least 180 days and received an honorable discharge is eligible for veteran benefits. For further information, consult the regional Veterans Administration Office.

International students are not eligible for the traineeship and government loan programs administered by the School and are advised to seek financial aid through their country of citizenship, private foundations, and international agencies such as the World Health Organization (www.who.int), Pan American Health Organization (www.paho.org), and the Rotary International (www.rotary.org).

Aside from the organizations mentioned above, international students can also apply for private loans. In order to do so, you must have a valid U.S. Social Security number and must also provide a cosigner who is a U.S. citizen or U.S. permanent resident.

The maximum amount that can be requested is the cost of attendance for one school year (tuition, room/board, personal expenses, etc.) minus any aid that may have been awarded by the academic department.

The FAO determines the cost of attendance once the number of credits that will be taken per semester is known. Once this information is received, the maximum amount for which the loan can be applied for will be determined.

Some departments have secured traineeships or fellowships in specialized areas of study that allow international student participation. Contact your department for additional information.

STUDENT EMPLOYMENT OPPORTUNITIES

Graduate Research Assistantship (G.R.A.). Departments have graduate research assistant positions on a limited basis. Students gain valuable experience working part time on faculty-run research projects and receive a stipend and/or tuition assistance. Students need to consult with their department coordinator for further information.

Teaching Assistantship (T.A.). Some departments have teaching assistant positions for a limited number of students who have substantial preparation in the study area. T.A.'s provide part-time assistance to faculty members in instruction, grading, and/or course administration. Students receive a stipend and/or tuition assistance. Please consult with the departments for further information.

Work-Study. Students certified by the Financial Aid Office as eligible for federally funded work-study may choose from a variety of part-time employment positions. Jobs are available in many offices throughout the University.

Office of Career Services. Search for full-time and part-time internship opportunities at <http://www.mailman.hs.columbia.edu/careerservices/index.html>.

You may also check the Columbia University Student Financial Services' Web site (<http://www.columbia.edu/cu/sfs/>), as well as the School's Web site (<http://www.mailman.hs.columbia.edu>), for additional information on financial aid resources.

Admission Requirements and Application Procedures

Application materials and instructions for the two application options—Online or Paper—are given following page 125 in the back of this Bulletin.

Degrees and Programs

The Mailman School of Public Health awards the following academic degrees:

MASTER OF PUBLIC HEALTH (M.P.H.)

MASTER OF SCIENCE (M.S.)

DOCTOR OF PUBLIC HEALTH (Dr.P.H.)

The admissions information in this section is relevant to these degree choices. For information about tracks within these degree programs, and level of study (master's, doctoral) offered within departments, see the *Academic Programs: General Information* section of this Bulletin or visit the School's Web site (<http://www.mailman.hs.columbia.edu>).

In addition, the School cooperates with other schools of the University in **DUAL DEGREE PROGRAMS** leading to:

M.P.H. and Doctor of Medicine (M.D.)

M.P.H. and Doctor of Dental Surgery (D.D.S.)

M.P.H. and Master of Science in Nursing (M.S.)

M.P.H. and Master of Science in Occupational Therapy (M.S.)

M.P.H. and Master of Business Administration (M.B.A.)

M.P.H. and Master of International Affairs (M.I.A.)

M.P.H. and Master of Public Administration (M.P.A.)

M.P.H. and Master of Science in Social Work (M.S.).

M.P.H. and Master of Science in Urban Planning (M.S.)

Additional information on dual degree programs can be found in the *Degree Offerings* section of this Bulletin and in the bulletins of the participating schools. Application is made to both the Mailman School of Public Health (using the application materials in this Bulletin) and to the participating school.

PH.D. DEGREE

The School also cooperates with the Graduate School of Arts and Sciences (GSAS) in programs leading to the Doctor of Philosophy (Ph.D.) degree. **Ph.D. applicants must use the GSAS application form for admission and submit the Ph.D. application and supporting documents to GSAS.** Admissions and application deadlines and other information on these programs should be obtained from the Departments of Biostatistics, Environmental Health Sciences, Epidemiology, or Sociomedical Sciences, or directly from the Admissions Office of GSAS: Office of Admissions, Columbia University Graduate School of Arts and Sciences, 107 Low Memorial Library, 535 West 116th Street (Mail Code 4303), New York, NY 10027; 212-845-4737.

Applicants may also apply online or download a Ph.D. application from the Web: <http://www.columbia.edu/cu/gsas/>.

Application Dates

A complete application, application fee, and all supporting credentials should be submitted by the following dates:

Summer and Fall (September) Admission—February 1*

Spring (January) Admission—October 1

Early application is advised. Late applications will be reviewed at the discretion of the School. Only complete applications will be reviewed.

Admission Requirements

All applicants must have a bachelor's degree from a recognized university or college, show evidence of satisfactory preparation in quantitative subject areas, and have an acceptable academic record.

Previous health professional or other relevant work experience is highly desirable. In addition, departments may have specific preadmission requirements for some programs and tracks. (Refer to the *Academic Programs: General Information* section of this Bulletin.)

All applicants to Dr.P.H. programs must have earned the M.P.H. degree or its equivalent. Applicants admitted with other master's or doctoral degrees are usually required to take a number of predoctoral public health courses, including the School's core courses. In considering applicants for admission for doctoral work, faculty consider records of academic ability and professional accomplishments and evidence of the applicant's potential to realize expressed goals.

*June 15 for the Executive M.P.H. program in Health Services Management and the Columbia On The Job (COTJ) part-time program in Health Policy and Management.

Minimum Work Requirements for Admission

Academic Department	Degree and Academic Track	Public Health Related Work Experience
Biostatistics	M.P.H.	None
	M.S. Clinical Research Methods	Certain clinical training or clinical research experience required
	M.S. Patient Oriented Research	Certain clinical training required
	M.S. Theory and Methods	None
Environmental Health Sciences	M.P.H. Environment and Molecular Epidemiology	None
	M.P.H. Environment and Molecular Toxicology	None
	M.P.H. Medical/Health Physics	None
Epidemiology	M.P.H.	Related paid or volunteer work preferred
	M.S.	Related paid or volunteer work preferred
Health Policy and Management	Executive M.P.H.	Minimum 5 years
	M.P.H. Columbia On The Job (COTJ)	Minimum 2 years
	M.P.H. Effectiveness and Outcomes Research	None
	M.P.H. Health Care Management	None
	M.P.H. Health Care Policy	None
General Public Health	M.P.H.	Minimum 2 years' work experience and additional health professions training
Heilbrunn Department of Population and Family Health	M.P.H. Forced Migration and Health	Minimum 2 years
	M.P.H. Reproductive, Adolescent, and Child Health	Minimum 2 years
	M.P.H. Sexuality and Health	Minimum 2 years
Sociomedical Sciences	M.P.H. Aging and Public Health	None
	M.P.H. Health Promotion and Disease Prevention	Minimum 2 years
	M.P.H. History and Ethics of Public Health and Medicine	None
	M.P.H. Research	None
	M.P.H. Sexuality and Health	Minimum 2 years
	M.P.H. Urbanism and Community Health	Some related work or volunteer experience or graduate-level coursework preferred

All applicants to dual degree programs must submit a separate application to each of the participating schools. For example, in applying for the M.P.H./M.B.A. dual degree program, an applicant must apply to both the Mailman School of Public Health and the Columbia Business School. After receiving acceptance from each of the schools, the student becomes eligible to follow dual degree guidelines. Early application to dual degree programs facilitates integration of academic content and is strongly encouraged.

Special (Nondegree) Students. A limited number of applicants may be granted admission as special (nondegree) students, to take courses earning academic credit. Appropriate candidates for nondegree status would include fellows in clinical departments in the Columbia Presbyterian Medical Center, or graduates of our degree programs seeking selected additional courses. No more than 6 points may be taken in nondegree status.

Applicants for nondegree status follow the same application procedures as other applicants with the following exceptions: (1) only two letters of recommendation are needed; (2) no test scores are required.

International Students.* Graduates of foreign colleges or universities who have completed an academic program equivalent to an American bachelor's degree are eligible to apply for admission. Applicants are required to submit with their application official certified transcript(s) in English. Applicants should submit all materials in the *Checklist* below. In addition, the *Test of English as a Foreign Language (TOEFL)* is required of all applicants (1) whose native

*This information applies to students who have received their education in a language other than English.

language is not English and/or (2) whose education was not conducted in English. A computer test score of 250 or higher is expected. Applicants who received their first university degree in an English-speaking country may request an exemption from TOEFL.

Arrangements to take the Test of English as a Foreign Language should be made in writing directly to TOEFL, Box 6151, Princeton, NJ 08541-6151, USA, or to their Web site at <http://www.toefl.org/> or faxed to 609-771-7500. We must have test results in order to make a decision on your application.

The International Students and Scholars Office (ISSO) of Columbia University at 524 Riverside Drive (mailing address: Mail Code 5724, 2960 Broadway, New York, NY 10027; phone: 212-854-3587; e-mail: isso@columbia.edu) provides visa services to international students during their stay at Columbia. Information on applying for an F-1 (student) visa or J-1 (exchange visitor) visa through ISSO is sent to international students with their admission letter. ISSO can also advise on visas for spouse and children of students.

Part-time Study. Master's and doctoral students are admitted on either a full-time or part-time basis, although some programs admit only full-time students. See page 19 of this Bulletin. Part-time students are expected to take no fewer than 6 points per semester. Course schedules contain a substantial number of evening courses; however, degree candidates will not be able to meet all course requirements during evening hours, except in the COTJ (Health Policy and Management) and Evening Program in Health Promotion and Disease Prevention (Sociomedical Sciences). Some day classes and perhaps a summer session may be needed to complete degree requirements. Part-time candidates for the M.P.H. degree are expected to complete all degree requirements within a five-year period.

Term of First Enrollment. Academic terms begin in September, January, or May, although admission in September (fall term) is recommended and is required in most departments. Refer to the *Academic Programs: General Information* section of this Bulletin.

Application Procedures and Checklist

A completed application consists of:

- Application Cover Sheet
- Personal statement
- Three sealed reference letters
- Official transcripts from all colleges and universities attended
- Application fee of \$60 U.S. currency (no cash payments accepted) (Online application requires payment by credit card.)
- Graduate Record Examination (GRE) General Test scores; Test of English as a Second Language (TOEFL) scores for international applicants

Application materials are located in the back of this Bulletin or on the School's Web site: <http://www.mailman.hs.columbia.edu/admissions/index.html>.

References. Send the *Letter of Recommendation* forms to the referees, preferably those who know your academic and/or professional qualifications. The forms instruct the evaluators to enclose the reference in an envelope, seal and sign across the seal, and return the reference to the applicant. The sealed envelope must not be opened. If you apply online your letters of recommendation may be submitted online as well.

Transcripts. The Admissions Committee requires an official transcript from each of the colleges and universities you list on the Application Cover Sheet. Official transcripts bearing the school's seal or stamp are to be submitted in signed, sealed envelopes. Materials in opened, unsigned, or unsealed envelopes cannot be accepted.

The Graduate Record Examination (GRE) General Test is a requirement for admission. The computer-based GRE is given year-round. Arrangements to take the test should be made directly through Graduate Record Examinations, Educational Testing Service, Box 6000, Princeton, NJ 08540-6000; 609-771-7670; <http://www.gre.org>. GRE test results are required for Admissions Committee review.

To report scores, use Institution Code No. 2159 and Department Code No. 0616.

GMAT, MCAT, DAT, or LSAT may be acceptable as a substitute for the GRE, at the discretion of the Admissions Committee, but the GRE score is preferred.

Interviews. Personal interviews are not required in all cases but may be requested by Admissions reviewers.

APPLICATION OPTIONS

All of the documents listed above, except the standardized test scores (GRE, TOEFL, etc.), should be assembled by the applicant and sent as a single package in the envelope provided at the back of this Bulletin.

Online Application is another option for applicants. Application is initiated through the School's Web site, and the remaining materials are sent through the mail. For full instructions go to <http://www.mailman.hs.columbia.edu> and click on Admissions.

Written notification of the Admissions Committee decision will be sent to you at the address indicated on your application. The Statement of Intent must be returned with the reservation fee by the date indicated in the letter sent to you.

Pre-enrollment Requirements

ADMISSIONS DEPOSITS

A nonrefundable deposit is required of new students in order to reserve a place in the entering class. If a paid deposit is not reflected on the first Student Account Statement of the term, the student may deduct that amount from any amount due.

If the student defers admission and wants the deposit credited to a later term, he/she must contact the Admissions Office.

HEALTH REQUIREMENTS

Medical Examination. A medical examination is requested of every new full-time student before registering in the School for the first time. This examination is to be administered by the student's own physician and reported on a health certificate, which will be provided to the student by the Health Sciences campus Student Health Service prior to registration. Proof of immunization should be returned along with the health certificate. Half-time and part-time students who intend to enroll in the Student Health Service must also complete and return a health certificate.

Immunization Requirements. Columbia University Health Sciences campus policy, and New York State health requirements, mandate that ALL students in the Health Sciences must prove immunity to measles (rubeola), mumps, and rubella (MMR) in order to register for classes. This includes students born before January 1, 1957. The only acceptable proof of immunity to measles, mumps, and rubella (MMR) is one of the following: (a) lab reports demonstrating immune titers obtained within five (5) years of the date of registration or (b) written documentation verifying two MMR immunizations (injections) 4 to 6 weeks apart no earlier than September 1, 1997. Documentation must be sent to Columbia University Student Health Service-MMR, 60 Haven Avenue, Room 3E, New York, NY 10032.

COMPUTER COMPETENCY

New students are expected to have working knowledge of personal computers and commonly used software programs, especially word processing. Also, students should anticipate that in some areas of public health practice and research, and in some advanced courses, they may be expected to use other types of software programs for database management, spreadsheets, and statistical analysis.

Students should plan to obtain basic computer skills before starting their program, or outside of classroom hours. Some short, noncredit computer courses are available through the University in specific areas and applications.

Transfer Credits

The M.P.H. degree at the Mailman School of Public Health requires a total of 45 points of academic credit. Following the successful completion of at least one term of coursework in the School, transfer points from an accredited school may be granted toward M.P.H. degree requirements for graduate courses not counted toward another degree, if determined appropriate to the student's degree program by the student's department. No more than 15 points may be transferred.

Core course requirements cannot be fulfilled with transfer points. Students who have taken similar courses elsewhere may either repeat the course(s) at MSPH or take and successfully pass the department's Core Course waiver exam. Successful completion of a Core Course waiver exam exempts students from the course requirement but does not carry course credit or reduce the number of points needed for the degree.

Requests for transfer credit must be made in writing by the student and approved by an academic advisor in the student's department or program and by the Dean of Students. Requests must be accompanied by adequate documentation (official transcript showing successful completion of course, course syllabus, etc.).

Students who cross-register while attending other schools within Columbia, please see page 26, the cross-registration section.

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Application Instructions

APPLICATION DEADLINES

Summer and Fall Admission*	February 1
Spring (January) Admission**	October 1

**The following selected programs have later deadlines:*

Executive M.P.H. Program in Health Services Management	June 15
Columbia On The Job (Part-time program in Health Policy and Management)	June 15

***Only programs in Environmental Health Sciences and General Public Health admit students to begin studies in the spring term.*

International students who need visas are urged to apply well before these dates.

Dual degree: Applicants seeking admission to dual degree studies must apply *separately* to the two collaborating schools and must meet the admissions requirements of each. Except where otherwise noted in the section of the Bulletin *Degree Offerings: Dual Degree Programs*, students may apply to both schools at the same time, or may apply to the second school after admission to the first school.

EARLY APPLICATION IS ALWAYS ADVISABLE.

ONLY COMPLETE APPLICATIONS WILL BE REVIEWED.

Application Options

OPTION I: ONLINE APPLICATION

Complete application items 1, 3, and 5 (from Checklist below) through our Web site. Submit the remaining application materials from the Checklist through U.S. mail. If you choose electronic transmission it will be completely secure and reliable, with guaranteed confidentiality and privacy of your personal data. Additionally, letters of recommendation may also be submitted online. Full instructions are at <http://www.mailman.hs.columbia.edu>.

Please allow at least 10 business days from the day on which you submit your application to receive a tracking number that will allow you to track receipt of your documents online.

OPTION II: PAPER APPLICATION

Use the forms, envelopes, and postcard contained in this Bulletin, and the Checklist below, to guide you through the process. When all of your application materials are assembled, send them in one package. We will use your self-addressed postcard to acknowledge that we have received your application. In addition, you can check our receipt of your application documents through *Admissions Online* at <http://www.columbia.edu/> or <http://www.mailman.hs.columbia.edu>.

Please note that a tracking number is needed in order to access the online application tracking system. You will receive your tracking number within approximately 10 business days from the time your application is received.

Application Checklist

Applicants should assemble Items 1–6 and submit these documents in *one* envelope to the Office of Admissions.

- _____ 1. **Application Cover Sheet.**
- _____ 2. **Official Transcripts** from all undergraduate and graduate schools attended.
- _____ 3. **Personal Statement** for department/program of choice (Item 15 on the Application Cover Sheet).
- _____ 4. **Letters of Recommendation**, signed and sealed, from three (3) individuals familiar with your academic and/or professional work. (References may be sent to the School directly if the referees wish, but your application can be handled in a more efficient and timely manner if all materials arrive at the Admissions Office in a single packet.) If you apply online, letters of recommendation may be submitted online.
- _____ 5. **Application Fee (nonrefundable)** of U.S. \$60 (money order or check payable to Columbia University).
- _____ 6. **Return Postcard** (provided), self-addressed.

To be forwarded directly to the School from Educational Testing Service:

- _____ 7. **Graduate Record Examination (GRE)** General Test Scores
Public Health Institutional Code: 2159; Department Code: 0616
(MCAT, LSAT, or DAT may be considered in place of GRE).
- _____ 8. International students must also submit **TOEFL** scores (**School Code: 2159; Department Code: 0616**).

MAILMAN SCHOOL OF PUBLIC HEALTH OF COLUMBIA UNIVERSITY

Office Location and Mailing Address: 722 West 168th Street, Suite 1030, New York, NY 10032

Telephone: 212-305-3927 Fax: 212-342-1830

Application Cover Sheet

APPLICATION FOR CLASS BEGINNING:

☐ September 200__ ☐ January 200__ ☐ May 200__ ☐ Full time ☐ Part time

1. ☐ Mr. ☐ Ms. ☐ Dr. _____
last name first middle previous surname

U.S. Social Security # _____

2. Date of birth _____ (optional)
month day year

3. ☐ Female ☐ Male

4. ADDRESS (Indicate with an X where you wish correspondence sent, and phone preference.)

☐ Permanent _____
street city state zip code

☐ Day phone _____ ☐ Evening phone _____

☐ Current _____
street city state zip code

☐ Day phone _____ ☐ Evening phone _____

Until _____ E-mail _____
month day year

5. COUNTRY OF CITIZENSHIP _____ Country code* _____ Citizenship code* _____

*Enter from "Code Lists" located at the end of this section.

International students: Will you need an application for a visa certificate for an F-1 or J-1 student visa? ☐ Yes ☐ No

6. The U.S. Department of Education requires the University to report on the racial composition of its student enrollment.

Self-identification by race is strictly voluntary. Check one:

☐ African American

☐ Asian—national origin: _____

☐ Hispanic—national origin: _____

☐ Native American (Indian, Eskimo, Aleut)

☐ White

☐ Other (please specify): _____

FOR OFFICE USE ONLY

DATE _____ ACTION _____ DEGREE/CONCENTRATION _____ ADVISOR _____

Application (page 2)

PROGRAM PREFERENCE

Degree and program to which you are seeking admission. Check the *Academic Programs: General Information* section of this Bulletin for appropriate combination of degree and concentration:

7. DEGREE (check one):

SINGLE DEGREE:

- ☐ MASTER OF PUBLIC HEALTH (MPH)
- ☐ MASTER OF SCIENCE (MS)
- ☐ DOCTOR OF PUBLIC HEALTH (DrPH)
- ☐ Special (Nondegree)

DUAL DEGREE with a cooperating Columbia school:†

- ☐ MPH/MD
- ☐ MPH/DDS
- ☐ MS-HPM/MD
- ☐ MS-HPM/DDS
- ☐ MPH/MS-Nursing
- ☐ MPH/MS-Occupational Therapy
- ☐ MPH/MBA-Business
- ☐ MPH/MIA-International Affairs
- ☐ MPH/MPA-Public Affairs
- ☐ MPH/MS-Social Work
- ☐ MPH/MS-Urban Planning

†your status at the cooperating school:

- ☐ accepted
- ☐ accepted and enrolled
- ☐ pending admissions review
- ☐ application not yet submitted

Ph.D. APPLICANTS: apply *directly* to Graduate School of Arts and Sciences using their application forms—see page 21, "Ph.D. Degree"

8. DEPARTMENT/PROGRAM (indicate first choice by writing "1" in the box next to the academic program; use "2" for second choice):

BIOSTATISTICS:

- ☐ MPH
- ☐ Theory and Methods (MS)
- ☐ Clinical Research Methods (MS)
- ☐ Patient Oriented Research (MS)

ENVIRONMENTAL HEALTH SCIENCES:

- ☐ Environment and Molecular Epidemiology
- ☐ Environment and Molecular Toxicology
- ☐ Medical/Health Physics

EPIDEMIOLOGY

- ☐ GENERAL PUBLIC HEALTH (restricted admission: see page 56.)

HEALTH POLICY AND MANAGEMENT:

- ☐ Health Care Management*
- ☐ Health Care Policy*
- ☐ Effectiveness and Outcomes Research*
- ☐ Executive MPH in Health Services Management**
- ☐ Columbia On The Job***

POPULATION AND FAMILY HEALTH:

- ☐ Reproductive, Adolescent, and Child Health
- ☐ Forced Migration and Health
- ☐ Sexuality and Health

SOCIOMEDICAL SCIENCES:

- ☐ Research Track
- ☐ Health Promotion/Disease Prevention Day Program
- ☐ Health Promotion/Disease Prevention Evening Program***
- ☐ History and Ethics of Public Health and Medicine
- ☐ Aging and Public Health
- ☐ Sexuality and Health
- ☐ Urbanism and Community Health

Application (page 3)

9. SCHOOLS ATTENDED

List, in reverse chronological order, college, university, graduate, and professional schools you have attended. For each school attended, enter the School Code (from "Code Lists" in this section) and submit a transcript for each school listed. Attach a separate page if you have more than four entries. Do not list schools whose grades are reflected on another transcript you are providing (e.g., study abroad).

School Code	School Name	Location	From Mo./Yr.	To Mo./Yr.	Degree	Major	Grade Point Average

10. PROFESSIONAL LICENSES (include dates and states)

11. List STANDARDIZED EXAMS you took/will take and scores if known. Official scores should be sent directly to the Admissions Office by the testing service(s).

Exam	Date	Total Score	Verbal	Quantitative	Analytical/Writing
GRE*					
TOEFL					
Other*—specify:		Score:			

*MCAT, LSAT, GMAT, or DAT may be considered in place of GRE.

11a. International students, please respond: Are you requesting waiver of the TOEFL? ☐ Yes (MUST submit written request) ☐ No

WORK EXPERIENCE

12. How many years of full-time work experience will you have, not including summer and part-time positions, by the time of your anticipated enrollment at the Mailman School of Public Health?

13. List work experience, starting with most recent position. (Attach additional sheets if necessary.) This section must be completed; a résumé or curriculum vitae may be attached but cannot be substituted for the information requested below.

Health-related?	Name and Address of Employer	Job Title and Description of Major Duties	Dates of Employment	Full Time or Part Time?
Y / N				
Y / N				
Y / N				
Y / N				

Application (page 4)

14. REFERENCES

Please arrange to have letters of recommendation sent to you in signed, sealed envelopes by three (3) individuals with recent knowledge of your abilities in professional work and responsibilities, and/or academic performance. See instructions on "Letter of Recommendation" form. If applying online, letters may be submitted online as well. List references here:

Name	Position/Department	Organization, City/State

15. PERSONAL STATEMENT

Please attach a typed (double-spaced) statement of approximately 500 words describing your interest in the area(s) of concentration specified, relationship of prior education and experience to the area of concentration, and career objectives. Doctoral applicants should state their research interests. **(Please be sure to include your name on your personal statement.)**

16. APPLICATION FEE

Please enclose nonrefundable fee of U.S. \$60 (check or money order payable to Columbia University).

17. Will you be applying for financial aid? ☐ Yes ☐ No

Be sure to read *Financing Your Education* section in the Bulletin. Do not wait for a response on admission.

18. Will you be applying for University housing? ☐ Yes ☐ No

19. Are you a Macy Scholar applicant? ☐ Yes ☐ No

20. What are your postgraduation career goals? _____

21. Where did you first learn of this program? (Check only one.)

☐ Internet	☐ Advertisement	☐ Our alumni	☐ Our students
☐ Employer/colleague	☐ Your school	☐ Other:	

Signature: _____

Date: _____

Letter of Recommendation

I. To the applicant:

This form is to be given to a person familiar with your academic and/or professional qualifications. (Please refer to the instructions for completing the application for admission in the *Admission Requirements and Application Procedures* section of the Bulletin before designating your reference.)

Applicant ☐ Mr. ☐ Ms. ☐ Dr. _____

Last Name

First

Middle

Address _____

Under the Buckley Amendment, students at Columbia University are permitted to see their academic records under certain conditions.

I hereby ☐ waive [☐ retain] the rights thus granted me to see this letter of recommendation should I become a student at the Mailman School of Public Health.

Signature of Applicant

Date

II. To

(Applicant to fill in name of person providing reference)

The above-named person is applying for admission to the Mailman School of Public Health of Columbia University and has given your name as a reference. Would you please comment on the applicant's major strengths and weaknesses with regard to graduate study and a career in public health. If you have known the applicant as an employee of your organization, please include an evaluation of his or her job performance. Please supply any additional information that might help the Admissions Committee in considering the applicant and return this recommendation form to the applicant in an envelope with your signature across the seal. The applicant will then submit the sealed, signed envelope as part of the completed application to the Mailman School of Public Health.

(continue on reverse side if necessary)

Signature

Position

Department

Organization

Address

Date

Letter of Recommendation (continued)

Letter of Recommendation

I. To the applicant:

This form is to be given to a person familiar with your academic and/or professional qualifications. (Please refer to the instructions for completing the application for admission in the *Admission Requirements and Application Procedures* section of the Bulletin before designating your reference.)

Applicant ☐ Mr. ☐ Ms. ☐ Dr. _____
Last Name First Middle

Address _____

Under the Buckley Amendment, students at Columbia University are permitted to see their academic records under certain conditions. I hereby ☐ waive (☐ retain) the rights thus granted me to see this letter of recommendation should I become a student at the Mailman School of Public Health.

Signature of Applicant _____ Date _____

II. To _____
(Applicant to fill in name of person providing reference)

The above-named person is applying for admission to the Mailman School of Public Health of Columbia University and has given your name as a reference. Would you please comment on the applicant's major strengths and weaknesses with regard to graduate study and a career in public health. If you have known the applicant as an employee of your organization, please include an evaluation of his or her job performance. Please supply any additional information that might help the Admissions Committee in considering the applicant and return this recommendation form to the applicant in an envelope with your signature across the seal. The applicant will then submit the sealed, signed envelope as part of the completed application to the Mailman School of Public Health.

(continue on reverse side if necessary)

Signature _____

Position _____

Department _____

Organization _____

Address _____

Date _____

Letter of Recommendation (continued)

Letter of Recommendation

I. To the applicant:

This form is to be given to a person familiar with your academic and/or professional qualifications. (Please refer to the instructions for completing the application for admission in the *Admission Requirements and Application Procedures* section of the Bulletin before designating your reference.)

Applicant ☐ Mr. ☐ Ms. ☐ Dr.

Last Name

First

Middle

Address

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Signature of Applicant

Date

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(Applicant to fill in name of person providing reference)

The above-named person is applying for admission to the Mailman School of Public Health of Columbia University and has given your name as a reference. Would you please comment on the applicant's major strengths and weaknesses with regard to graduate study and a career in public health. If you have known the applicant as an employee of your organization, please include an evaluation of his or her job performance. Please supply any additional information that might help the Admissions Committee in considering the applicant and return this recommendation form to the applicant in an envelope with your signature across the seal. The applicant will then submit the sealed, signed envelope as part of the completed application to the Mailman School of Public Health.

(continue on reverse side if necessary)

Signature

Position

Department

Organization

Address

Date

Letter of Recommendation (continued)

Code Lists

CITIZENSHIP CODES

PR	PERMANENT RESIDENT OF THE U.S. (GREEN CARD HOLDER)
Z1	FOREIGN STUDENT
US	U.S. CITIZEN
N1	OTHER

COUNTRY CODES

AFG	AFGHANISTAN
ALB	ALBANIA
ALG	ALGERIA
AND	ANDORRA
ANG	ANGOLA
ANT	ANTIGUA AND BARBUDA
ARG	ARGENTINA
ARM	ARMENIA
AST	AUSTRIA
AUS	AUSTRIA
AZE	AZERBAIJAN
AZR	AZORES
BHM	BAHAMAS
BAH	BAHRAIN
BNG	BANGLADESH
BAR	BARBADOS
BLZ	BELIZE
BEL	BELGIUM
BEN	BENIN
BER	BERMUDA
BHU	BHUTAN
BOL	BOLIVIA
BOS	BOSNIA
BOT	BOTSWANA
BRA	BRAZIL
BVI	BRITISH VIRGIN ISLANDS
BRW	BRITISH WEST INDIES
BRU	BRUNEI
BUL	BULGARIA
BKF	BURKINAFASO
BUR	BURMA
BRD	BURUNDI
BYE	BYELARUS
CMR	CAMEROON
CAN	CANADA
CAR	CENTRAL AFRICAN REPUBLIC
CHD	CHAD
CHI	CHILE
CHN	CHINA
CLS	COLOMBIA
CGO	CONGO
CSR	COSTA RICA
CRO	CROATIA
CUB	CUBA
CYP	CYPRUS
CZR	CZECH REPUBLIC
CZE	CZECHOSLOVAKIA
DEN	DEMARC
DJI	DJIBOUTI
DCA	DOMINICA
DDM	DOMINICAN REPUBLIC
ECU	ECUADOR
EGY	EGYPT
ELS	EL SALVADOR
ENG	ENGLAND
EQG	EQUATORIAL GUINEA
EST	ESTONIA
ETH	ETHIOPIA
FJI	FIJI
FIN	FINLAND
FRA	FRANCE
FJI	FRENCH GUIANA
FPD	FRENCH POLYNESIA
GAB	GABON
GAM	GAMBIA
GZS	GAZA STRIP
GEA	GEORGIA
GER	GERMANY
GHA	GHANA
GIB	GIBRALTAR
GRC	GREECE
GRN	GREENLAND
GRN	GREENLAND
GUA	GUADALUPE
GUA	GUATEMALA
GUY	GUINEA-BISSAU
GUY	GUYANA
HAI	HAITI
HND	HONDURAS
HKG	HONG KONG
HUN	HUNGARY
ICE	ICELAND
IND	INDIA
IND	INDONESIA
IRN	IRAN
IRQ	IRAQ
IRE	IRELAND
ISR	ISRAEL
ITL	ITALY
IVO	IVORY COAST
JAM	JAMAICA
JPN	JAPAN
JDN	JORDAN
KMP	KAMPUCHEA
KAZ	KAZAKHSTAN

KEN	KENYA
KBI	KIRIBATI ISLANDS
KUW	KUWAIT
KYR	KYRGYZSTAN
LAD	LADS
LAT	LATVIA
LES	LESOTHO
LIB	LIBERIA
LCH	LIBYA
LIT	LITHUANIA
LUX	LUXEMBOURG
MAC	MACAU
MAE	MACEDONIA
MAD	MADAGASCAR
MAL	MALAGASY REPUBLIC
MAL	MALAWI
MAY	MALAYSIA
MWD	MALDIVES
MAL	MALI
MAA	MALTA
MAR	MARIANA ISLANDS
MAR	MARTINIQUE
MAT	MAURITANIA
MAU	MAURITIUS
MEX	MEXICO
MID	MIDWAY ISLANDS
MOL	MOLDOVA
MON	MONACO
MOG	MONGOLIA
MOR	MOROCCO
MOZ	MOZAMBIQUE
NAM	NAMIBIA
NEP	NEPAL
NTH	NETHERLANDS
NIA	NETHERLANDS ANTILLES
NIC	NEW CALEDONIA
NZL	NEW ZEALAND
NCD	NICARAGUA
NIG	NIGER
NGR	NIGERIA
NKR	NORTH KOREA
NIR	NORTHERN IRELAND
NOR	NORWAY
OMN	OMAN
OTH	OTHER
PAK	PAKISTAN
PAN	PANAMA
PAP	PAPUA NEW GUINEA
PAR	PARAGUAY
PER	PERU
PHI	PHILIPPINES
POL	POLAND
POR	PORTUGAL
QAT	QATAR
ROM	ROMANIA
RUS	RUSSIA
RAW	RWANDA
SAU	SAUDI ARABIA
SCO	SCOTLAND
SEN	SENEGAL
SLE	SIERRA LEONE
SIN	SINKIKIM
SIN	SINGAPORE
SLW	SLOVAKIA
SLV	SLOVENIA
SLM	SOLOMON ISLANDS
SOM	SOMALIA
SOF	SOUTH AFRICA
SOK	SOUTH KOREA
SOV	SOVIET UNION
SPN	SPAIN
SRI	SRI LANKA
STP	ST. PIERRE & MIQUELON
SUD	SUDAN
SUR	SURINAME
SWZ	SWITZERLAND
SWD	SWEDEN
SWI	SWITZERLAND
SYR	SYRIA
TWN	TAIWAN
TJK	TAJIKISTAN
TNZ	TANZANIA
THL	THAILAND
TGO	TOGO
TRD	TRINDAD & TOBAGO
TUN	TUNISIA
TRK	TURKEY
TRK	TURKEMISTAN
UGA	UGANDA
UKR	UKRAINE
UAE	UNITED ARAB EMIRATES
UKD	UNITED KINGDOM
USA	UNITED STATES
FOR	UNKNOWN FOREIGN
URU	URUGUAY
UZB	UZBEKISTAN
VAN	VANUATU
VEN	VENEZUELA
VIE	VIETNAM
WAL	WALES
WSA	WESTERN SAMOA
YEM	YEMEN
YUG	YUGOSLAVIA
YAI	ZAIRE

SCHOOL CODES

ALABAMA	ALABAMA AGRI MECH U
1034	ALABAMA CHRSTN COLL
1006	ALABAMA ST UNIV
1005	AUBURN UNIV
3231	BESSEMER ST TECH COLL
1054	BIRMINGHAM STRN UNIV
1989	CONCORDIA COLLEGE
1213	ENTERPRISE ST JR COLL
1262	GADSDEN ST JR COLLEGE
1264	GEO C WALLACE ST CC DOT
3146	GEO C WALLACE ST CC SEL
1303	HUNTINGDON COLL
1939	J H FAULKNER ST JR C
1736	JACKSONVILLE ST UNIV
1355	JEFFERSON DAVIS ST JC
1352	JEFFERSON ST JR COLL
1356	JOHN C CALHOUN ST CC
1349	JUDSON COLLEGE AL
1292	L B WALLACE ST JR C
1933	LAWSON ST C C
1737	LIVINGSTON UNIV
1448	MILION MILITARY INST
1467	MILES COLL
1515	MOBILE COLL
1576	NORTHEAST ALA ST J C
1586	OKWOOD COLL
1644	PATRICK HENRY ST J C
1641	PROVIDENCE HOSPITAL
9297	RED DEER COLLEGE
1517	S D BISHOP ST JR COLL
1302	SAMFORD UNIVERSITY
1792	SELMA UNIV
1338	SHELTON STATE C C
1721	SNEAD ST JR COLL
1723	SOUTHESTRN BIBLE COLL
1728	SOUTHERN UNIV ST J C
1733	SPRING HILL COLL
1739	STILLMAN COLL
1800	TALLADEGA COLL
1798	TROY ST UNIV MONTGMY
1798	TROY STATE UNIV TROY
4495	TUSKEGEE INST
1962	UN AL PHYS ASSIST PR
1856	UNIV ALABAMA BRMNGHM
1854	UNIV ALABAMA HUNTSVL
1830	UNIV ALABAMA MOBILE
1004	UNIV MONTEVALLO
1735	UNIV NORTH ALABAMA
1880	UNIV SOUTH ALABAMA
ALASKA	ALASKA PACIFIC UNIV
4201	ANCHORAGE COMM COLL
4096	CHUKCHI CMY COLL
4373	KENAI PENINSULA C C
4370	KETCHIKAN C C
4372	KODIAK CMY COLL
4370	KUSKOKWIM CMYNTY COLL
4509	MATANUSKA-SUSTINA CC
4545	NORTHWEST CMY COLL AK
4636	PRINCE WM SOUND C C
4742	SHELDON JACKSON COLL
4754	SITKA CMY COLL
4829	TANANA VLY COMM COLL
4896	UNIV ALASKA ANCHRDGE
4866	UNIV ALASKA FAIRBNKS
4897	UNIV ALASKA JUNEAU
AMERICAN SAMOA	AMER SAMOA CMY COLL
0020	AMER SAMOA CMY COLL
ARIZONA	ARIZONA ST U-PSAP
4071	ARIZONA STATE UNIV
4071	ARIZONA WSTRN COLL
4070	CENTRAL ARIZONA COLL
4087	COCHISE COLL
4297	EASTRN ARIZONA COLL
4305	EMBURY RIDGE AERON U
4338	GLENDALE C C AZ
4331	GRAND CANYON COLL
4513	MESA C C
4550	NAVAJO CMY COLL
4006	NORTHNRN ARIZONA UNIV
4066	PHOENIX COLL
4623	PIMA COMMUNITY COLL
4555	SCOTTSDALE C C
4734	SOUTH MOUNTAIN C C
4736	SOUTHWSTN BAPT BIBLE
4744	SWEETWATER COLLEGE
4892	UNIVERSITY ARIZONA
4936	YAVAPI COLL
ARIZONA	ARIZONA CHRISTIAN C
6009	ARIZONA COLLEGE
6011	ARIZONA ST UNIV
6010	ARIZONA TECH UNIV
6018	ARIZONA VALLEY V T
6121	COLL OZARKS
6131	CROWLEYS RIDGE COLL
6243	GARLAND CO C C
6267	HARDING UNIV
6272	HENDERSON ST UNIV
6273	HENDRIX COLL
6321	JOHN BROWN UNIV
6349	QUACHITA BAPTIST UNIV
6578	PHILLANDER SMTH COLL
6583	PHILLIPS CMY C C
6649	SHORTER COLL AR
6704	SOUTHRN ARK U TCH B
6661	SOUTHRN ARKANSAS UNIV
6658	SOUTHRN BAPTIST COLL
6866	UNIV ARKANSAS FAYETT
6007	UNIV ARKANSAS MONTCL
6004	UNIV ARKANSAS PIA BLF
6012	UNIV CENTRAL ARKANSAS
6368	UNIV OF ARK L R
6220	WESTARK C C
CALIFORNIA	ALLAN HANDOCK COLL
4002	AMBASSADOR COLL
4010	AMERICAN RIVER COLL
4014	ANTELOPE VALLEY COLL
4210	ANTIOCH U WEST SN FN
4008	ARMSTRONG COLL
4009	ART CTR COLL DESIGN
4596	AZUSA PACIFIC UNIV
4015	BAKERSFIELD COLL
4020	BARTSTW CMY COLLEGE
4234	BAUDER COLLEGE CA
4021	BETHANY BIBLE COLL
4017	BIOLA UNIVERSITY
4228	BROOKS INSTITUTE
4226	BUTTE COMMUNITY COLL
4713	CA ST COL STANISLAUS
4084	CABRILLO COLL
4038	CAL POLY SLR
4671	CAL ST U SACRAMENTO
4048	CAL STATE UNIV CHICO
4011	CAL STATE UNIV HAYWD
4094	CALIF BAPTIST COLL
4251	CALIF BIBLE COLL
4031	CALIF C ARTS CRAFTS
4123	CALIF CHRISTIAN COLL
4066	CALIF HOSP MED CNTR
4049	CALIF INSTITUTE ARTS
4034	CALIF INSTITUTE TECH
4038	CALIF LUTHERAN COLL
4035	CALIF MARITIME ACADE
4110	CALIF ST COL BAKERS
4082	CALIF ST POLY U PMD
4389	CALIF ST U LONG BCH
4399	CALIF ST U LOS ANGLS
4707	CALIF ST U NORTHRIDGE
4098	CALIF ST UNIV DOM HL
4589	CALIF ST UNIV FLRTN
4312	CALIF ST UNIV FRESNO
4109	CANADA COLL
4083	CERRITOS COLL
4075	CERRITO COLLEGE
4125	CERRITO COLLEGE
4046	CHAFFEY CMY COLL
4047	CHAPMAN COLL
4049	CHRISTIAN COLL IRVINE
4150	CHRISTIAN HERITAGE C
4051	CITRUS COLL
4052	CITY COLL SAN FRANCISCO
4050	CLEMENT MCKENNA C
4067	CLAREMONT COLLEGE
4086	COASTLINE CMY CLG
4057	COGSWELL COLLEGE
4118	COLL ALAMEDA
4117	COLL CANYON
4085	COLL DESERT
4061	COLL MARIN
4063	COLL NOTRE DAME CA
4071	COLL OF THE SEQUOIAS
4100	COLL REEDWOODS
4070	COLL SAN MATEO
4087	COLL SISKIYOU
4088	COLUMBIA COLLEGE
4080	COMPTON CMY COLL
4943	CONTRA COSTA COLL
4121	COSUMNES RIVER COLL
4126	CRAFTON HILLS COLL
4101	CUESTA CMY COLLEGE
4086	CUYAMCA COLLEGE
4104	CYPRESS COLL
4286	DE ANZA COLL
4282	DHARMA REALM UNIV
4295	DIAZ VALLEY COLL
4279	DON BOSCO TECH INST
4296	EAST LOS ANGELES COLL
4248	EDISON TECH INST
4302	EL CAMINO COLL
4275	EMPIRE COLL
4273	EVERGREEN VALLY COLL
4257	FASHION INST. OF DESIGN & MERCH
4318	FEATHER RIVER COLL
4315	FOOTHILL COLL
4311	FRESNO CITY COLLEGE
4616	FRESNO PACIFIC COLL
4314	FULLERTON COLL
4678	GAVILAN JOINT C C
4327	GLENCORE COMMU COLL
4329	GOLDEN GATE UNIVS
4339	GOLDEN WEST COLL
4334	GROSSMONT COLL
4340	HARTNET COLL
4341	HARVEY MUDD COLL
4343	HEALD ENGR COLL
4059	HOLY NAMES COLL
4355	HUMBOLDT ST UNIV
4344	HUMPHREYS COLL
4358	IMPERIAL VALLEY COLL
4361	INDIAN VALLEY COLL
4655	KINGS RIVER CMY COLL
4420	LAKE TAHOE CMY COLL
4406	LANEY COLL
4383	LASSEN COLL
4386	LINCOLN UNIV CA
4062	LOMA LINDA U LOMA LN
4380	LOMA LINDA U RIVERSID
4382	LONG BEACH CITY COLL
4411	LOS ANGELES BAPT COLL
4391	LOS ANGELES CITY COLL
4385	LOS ANGELES TRD C
4395	LOS ANGELES HARBOR C
4404	LOS ANGELES MISSIN C
4398	LOS ANGELES PIERCE C
4409	LOS ANGELES SIO COLL
4401	LOS ANGELES VALLEY C
4396	LOS MEDANOS COLL
4421	LOUISE SALINGER A FASH
4403	LOYOLA MARYMNT UNIV
4515	LYONS PALMS VLY D C
4517	MENOCINGO COLL
4483	MENLO COLL
4500	MERCED COLL
4481	MERIT COLL CRT RPRTG
4502	MERRITT COLL
4485	MILLER CC
4487	MILLS COLL
4582	MIRA COSTA COLLEGE
4581	MISSION COLLEGE
4486	MODESTO JR COLL
4590	MONTEREY INST INTL S
4497	MONTANA SEMIN COLL
4504	MOOREHEAD COLL
4494	MOUNT SAN ANTONIO C
4501	MOUNT SAN JACINTO C
4493	MOUNT ST MARYS COLL
4502	MOUNT ST MARYS C DOWNEY
4530	NAVAJO COLLEGE
4555	NEW VALLEY CALIFORNIA
4540	NORTHROP UNIV
4581	OCCIDENTAL COLLEGE
4579	OHNE COLLEGE
4584	ORANGE COAST COLL
4394	OTIS ART INST PARSNS
4591	OXNARD UNIV
4614	PACIFIC CHRSTN COLL
4600	PACIFIC UNION COLL
4603	PALO VERDE COLL
4602	PALOMAR COLL
4609	PASADENA CITY COLL
4620	PATTEN COLLEGE
4630	PEPPERDINE UNIV
4619	PITZER COLLEGE
4600	SAN LOMA UNIV
4607	POMONA COLLEGE
4608	PORTERVILLE COLLEGE
4644	QUINCY HOLY ROSARY CL
4663	RIO HONDO COLL
4658	RIVERSIDE COLLEGE
4670	SACRAMENTO CITY COLL
4773	SADLERBACK CMY CL N
4747	SADLERBACK COLLEGE
4757	SAMUEL HOSPTAL HOSP
4679	SAN BERNARDINO VLY C
4681	SAN DIEGO CITY COLL
4738	SAN DIEGO MESA COLL
4725	SAN DIEGO STATE UNIV
4036	SAN FRANCISCO ART INST
4684	SAN FRANCISCO STATE UNIV
4706	SAN JOAQUIN DELTA CL
4686	SAN JOSE STATE COLL
4676	SAN JOSE CITY COLL
4687	SAN JOSE STATE UNIV
4689	SANTA ANA COLL
4690	SANTA BARBARA CITY C
4691	SANTA MONICA COLL
4692	SANTA ROSA JR COLL
4693	SCRIPPS COLL
4744	SPR CONSERVATOR MUSIC
4696	SHASTA COLL
4697	SIERRA COLL
4698	SIMPSON COLL CA
4753	SKADRON CLG OF BUSIN
4746	SKYLINE COLL
4392	SO CAL COLL OPTOMETRY
4390	SOLANO CMY COLL
4723	SONOMA STATE UNIV
4701	SOUTHRN CALIF COLL
4726	SOUTHWESTERN COLL CA
4673	ST JOHNS COLL CA

4688 ST LUKES HOSP NURS
4675 ST PATRICKS COL
4677 ST PATRICKS COL
4760 STANFORD PRMY CARE
4704 STANFORD UNIV
4820 TAFT COL
4828 THOMAS AQUINAS COLL
4039 U S INTLNTL UNIV CA
4333 UNV CALIF BERKELEY
4834 UNV CALIF DAVIS
4859 UNV CALIF IRVINE
4848 UNV CALIF LA JOLLA
4837 UNV CALIF LOS ANGELES
4835 UNV CALIF SANTA BAR
4860 UNV CALIF SANTA CRZ
4834 UNV CALIFORNIA RIVR
4836 UNV CALIFORNIA SVN D
4381 UNV OF LA VERNE
4065 UNV PACIFIC
4368 UNV REDLAND JOHNS C
4848 UNV REDLAND
4849 UNV SAN DIEGO
4850 UNV SAN FRANCISCO
4851 UNV SANTA CLARA
4852 UNV SOUTHERN CALIF
4931 VENTURA COL
4932 VICTOR VALLEY COL
4970 WEST COAST BIBLE COL
4956 WEST COAST UNIV
4066 WEST HILLS C COL
4964 WEST LOS ANGELES COL
4958 WEST VALLEY COL
4950 WESTMONT COL
4906 WESTERN STATES C ENGR
4952 WHITTIER COL
4955 WOODBURY UNV
4991 WORLD COLLEGE WEST
4997 YESHIVA UNV LOS ANG
4994 YUBA COLLEGE

CANAL ZONE

0909 PANAMA CANAL COLLEGE

COLORADO

4001 ADAMS STATE COL
4204 AIMS CMTY COL
4104 APARAHOE CMTY COL
4202 BETH EL SCHOOL NURS
4137 C C DENVER AURARIA
4144 CHERRY CREEK BAPT C
4072 COLORADO COL
7150 COLORADO INST OF ART
4132 COLORADO MT C OF WINDS
4113 COLORADO MT C LEADP
4140 COLORADO MTH CL ADVP
4665 COLORADO HWSTN CR
4666 COLORADO SCH MINES
4075 COLORADO ST UNIV
4133 COLORADO TECH COL
4076 COLORADO WOMENS COL
4022 DENVER BAPT BIBLE CL
4119 FRONT RANGE CMTY COL
4310 FT LEWIS COL
4382 LAMAR CMTY COL
4390 LORETTO HEIGHTS COL
4484 MESA COLLEGE
4505 METROPOLITN ST COL
4516 MORGAN COMM COLLEGE
4537 NORTHERN JR COL
4588 OTERO JR COL
4581 Pikes Peak CC
4634 PUEBLO VOC COMM COL
4130 RED ROCKS CMTY COL
4656 REGIS COLLEGE
4666 ROCKMONT CMTY COL
4711 ST THOMAS SEMINARY
4821 TRINIDAD ST JR COL
4874 UNV COLO COLO SPRGS
4861 UNV COLORADO BOULDER
4874 UNV COLORADO DENVER
4074 UNV NTRN COLORADO
4482 UNV OF DENVER
4611 UNV OF SOUTHERN COL
4519 US AIR FORCE ACAD
4975 WESTERN COLORADO UNV
4946 WESTRN ST COL COLO

CONNECTICUT

3601 ALBERTUS MAGNUS COL
3656 ASHUNUTUCK CMTY COL
3121 BRIARWOOD COLLEGE
3093 BRIDGEPORT ENGR INST
3899 BRIDGEPORT HOSPITAL
3899 CENTRAL CONN ST COL
3284 CONNECTICUT COL
3966 EASTERN CONN ST COL
3199 FAIRFIELD UNV
4421 GREATER HARTFORD C C
3425 GTR N HAVN S TCH C
3431 HARTFORD COL WOMEN
3443 HARTFORD INST ACCT
3764 HARTFORD ST TECH COL
3446 HOUSTATONIC CMTY COL
3470 KATHERINE GIBBS SCH
3544 MANCHESTER CMTY COL
3543 MATYATUCK C C
3551 MOOREHEAD C C CT
3528 MITCHELL COLLEGE
3558 MOHEGAN CMTY COL
3539 MORROW SCHOOL BUSINES
3552 NORTH HAVEN CMTY COL
3678 NORWALK CMTY COL
3675 NORWALK ST TECH COL
3555 ONA M WILCOX SCH NUR
3556 PASCO COLLEGE OF ART
3638 POST COLLEGE

3716 QUINEBAUG VALLEY C C
3712 QUINNIPAC COL
3780 SACRED HEART UNV
3792 SOUTH CENTRAL CC
3662 SOUTHERN CONN ST COL
3784 ST ALPHONSUS COL
3750 ST BASILUS COL
3781 ST FRANCIS HOSPITAL
3754 ST JOSEPH COL CT
3798 ST MARYS HOSPITAL
3784 ST THOMAS SEM HARTFD
3789 ST VINCENTS MED CNTR
3654 THOMAS VIV ST TECH C
3899 TRINITY COLLEGE CT
3897 TUNXIS CMTY COLLEGE
3914 UNV BRIDGEPORT
3914 UNV CONNECTICUT
3436 UNIVERSITY HARTFORD
3663 UNIVERSITY OF NEW HAVEN
5807 US COAST GUARD ACAD
3978 WATERBURY ST TECH COL
3959 WESLEYAN UNV
3350 WESTERN CONN ST COL
3989 VALE UNIV PHYS ASSOC
3987 VALE UNIVERSITY

DISTRICT OF COLUMBIA

5007 AMERICAN UNV
5057 BENJAMIN FRANKLIN UN
5104 CATHOLIC UNV AMERICA
5705 CORDOAN SCH OF ART
5070 GALLATHERY COL
5246 GEORGE WASHINGTON U
4844 GEORGETOWN UNV
3297 HOWARD UNV
5259 MOUNT VERNON COL
5244 OBATA COLLEGE
5622 SOUTHERN UNV
3632 STRAYER COL
3726 TRINITY COLLEGE
5294 UNV DIST COLUMBIA
7961 WASH SCH SECRETARIES
5891 WASHINGTON MUSC INST

FLORIDA

5040 ART INST FT LAUDER
5053 BARRY UNIVERSITY
5712 BAUER CL SPE CAREE
6001 BETHUNE COOKMAN COL
5074 BISCAYNE UNV
5073 BREVARD CMTY COL
5045 BREVARD COMM COLLEGE
5074 BROWARD CC FT LAUDER
5741 BROWARD CC HOLLYWOOD
5733 BROWARD CC PMPHO BCH
5127 CENTRAL FLORIDA C C
5106 CHIPLA JUNIOR COL
5142 CLEARWATER BEACH C C
5106 COLLEGE OF BCS UNV
5159 DAYTONA CHRISTN C
5223 ECKERO COL
5191 EISON CMTY COL
5190 EDWARD WATERS COL
5190 EMBURY RIDDLE AERON U
5232 FLA JUNIOR COLLEGE
5235 FLAGLER COLLEGE
5235 FLORIDA AGRIC MECH U
5239 FLORIDA ATLANTIC UNV
5605 FLORIDA BEACON COL
5202 FLORIDA BIBLE COL
5216 FLORIDA COL
5080 FLORIDA INST TECH
5206 FLORIDA INTL UNV
5236 FLORIDA KEYS COM COL
5217 FLORIDA MEMORIAL COL
5218 FLORIDA SOUTHERN COL
5219 FLORIDA STATE UNV
5171 FT LAUDERDALE COL
5271 GULF COAST CMTY COL
5304 HILLSBOROUGH C C
5306 HORE SOUND BIBLE COL
5322 INDIAN RIVER C C
5327 INTRINATL FINE ARTS C
5337 JACKSON MEMORIAL HSP
5331 JACKSONVILLE UNV
5343 JAMES CLAY COL
5377 LAKE CITY CMTY COL
5368 LANHAM BAPTIST COL
5427 MANATEE JR COL
5160 MIAMI DADE COMM COL
5457 MIAMI DADE COMM COL
5458 MIAMI DADE COMM COL
5596 NEW COL UNV FL
5595 NORTH FLORIDA JR COL
5514 NOVA UNIVERSITY
5526 OKALOOSA WALTON JR C
5525 PALM BCH ATLANTIC C
5527 PALM BCH JR COL
5562 PASCO HERNANDO CC BRK
5565 PASCO-HIRNANDO CC BRK
5559 PASCO HERNANDO CC NFR
5570 PENSACOLA CHRSTN COL

5535 PENSACOLA JUNIOR COL
3548 POLK CMTY COL
5573 RINGLING SCHOOL ART
5572 ROLLINS COLLEGE
5653 SANTA FE CMTY COL
5640 SANTA ROSA CHRSTN CL
5812 SEMINOLE CMTY COL
5863 SHELTON COL
5666 SOUTH FLORIDA JR COL
5621 SOUTHEASTERN COLLEGE
5650 ST JOHN WIANNEY C SM
5641 ST JOHNS RIVER C C
5678 ST PETERSBURG JR COL
5606 ST LEO COLLEGE
5658 ST PETERSBURG JR COL
5630 STETSON UNV
5233 UNV CENTRAL FLORIDA
5812 UNV FLORIDA
5815 UNV MIAMI
5490 UNV NORTH FLORIDA
5828 UNV SOUTH FLORIDA
5819 UNV TAMPA
5833 UNV WEST FLORIDA
5869 VALENCIA CMTY COL
5883 WARNER SOUTHERN COLL
5893 WEBBER COLLEGE

GEORGIA

5001 ABRAHAM BALOWIN COL
5002 AGNES SCOTT COLLEGE
5026 ALBANY JR COLLEGE
5004 ALBANY TECH COLLEGE
5009 ANDREW STATE COLLEGE
5012 ARMSTRONG COLLEGE
5429 ART INSTITUTE ATLANTA
5034 ATLANTA AREA TECH SC
5029 ATLANTA CHRSTN COL
5014 ATLANTA COLLEGE ART
5725 ATLANTA JR COLLEGE
5713 AUGUSTA A V T-OCAN
5736 AUGUSTA AREA TECH SC
5334 AUGUSTA COLLEGE
5062 BAINBRIDGE JR COL
5074 BAPTIST UNV AMERICA
5070 BAUDER FASHION C GA
5059 BERRY COL
5082 BEULAH HGTS BIBLE C
5066 BRENAU COLLEGE
5068 BREWTON-PARKER COLLE
5078 BRUNSWICK JR COL
5329 CHAPEL HILL COL
5110 CLARK COLLEGE
5143 CLAYTON JR COL
5074 COLUMBUS A V T S
5123 COLUMBUS COLLEGE
5125 CRAWFORD LNG MEM HSP
5167 DALTON JR COL
5165 DEKALB CMTY C CNTRL
5165 DEKALB CMTY C NORTN
5711 DEKALB CMTY C SOUTH
5200 DEKALB GENERAL HOSP
5125 EMANUEL CO JR COL
5184 EMANUEL COL GA
5197 EMORY U
5196 EMORY U ALLIO HLT P
5237 FLOYD JR COL
5220 FT VALLEY ST COL
5227 GAINESVILLE JR COL
5242 GEORGIA BAPTIST HOSP
5297 GEORGIA COLLEGE
5249 GEORGIA MILITARY COL
5241 GEORGIA ST UNV
5253 GEORGIA STRN COL
5250 GEORGIA SWSTRN COL
5248 GEORGIA TECH
5256 GORDON JR COL
5263 GRAY MEMORIAL HOSP
5344 JOHN MARSHALL UNV
5359 KENNESAW COLLEGE
5362 LAGRANGE COLLEGE
5439 LACON JR COL
5441 MARITTA COBB AR V
5406 MEDICAL COL GEORGIA
5444 MEDICAL CTR ST FR RT
5444 MERCER U ATLANTA
5423 MERCER U STM S PHAR
5409 MERCER UNV MACON
5411 MIDDLE GEORGIA COL
5415 MOREHOUSE COLLEGE
5415 MORRIS BROWN COLLEGE
5497 NORTH GEORGIA COL
5507 NORTH GEORGIA T V SC
5521 OGLETHERPE UNV
5186 OGDON COL
5187 PAINE COLLEGE
5337 PIEDMONT COL
5337 PIEDMONT HOSPITAL
5548 REINHARDT COL
5171 ROBINS RESIDENT CNTR
5631 SAVANNAH C ART DESIGN
5609 SAVANNAH ST COL
5616 SHORTER COL GA
5627 SOUTH GEORGIA COL
5626 SOUTHRN TECH INST
5628 SPALM COLLEGE
5671 SWAINSBORO AR V T SC
5072 THOMAS CO COMM COL
5171 TIFT COLLEGE
5099 TOCCOA FALLS COLLEGE
5798 TRUETT MCCONNELL COL
5813 UNV GEORGIA ATHENS
5812 UNV GEORGIA D CTR
5855 VALDOSTA ST COL
5889 VAWCROSS JR COL
5895 WESLEYAN COL
5900 WEST GEORGIA COL

5990 YOUNG-HARRIS COLLEGE
0937 MICRONESIAN OCCUPAT
0959 UNV GUAM

HAWAII

4106 BRIGHAM YOUNG U HI
4324 CANNONS INST BUS COLL
41105 CHAMAINATE UNV HONLU
4894 HAWAII COMM COL
4331 HAWAII LCA COLL
4352 HAWAII PACIFIC COLL
4350 HONOLULU CMTY COL
4377 INTRNATL UNV HI
4377 KAPOLANI CMTY COL
4378 KAUA CMTY COL
4410 LEAWARD CMTY COL
4401 MAUI COMM COLLEGE
4511 U S INTLNTL UNV HI
4869 UNV HAWAII HILP CMT
4867 UNV HAWAII MANOA
4976 WINDWARD CMTY COL

IDAHO

4018 BOISE ST UNIV
4060 COLL IDAHO
4114 COLL SOUTHERN IDAHO
4091 COLL ST GERTRUDE UNV
4355 IDAHO ST UNV
4385 LEWIS-CLARK ST COLLE
4539 NORTH IDAHO COL
4404 NORTHWEST NAZARENE C
4657 RICKS COLL
4843 UNIV IDAHO

ILLINOIS

4151 ADVANCED ACCEPTNC PR
1131 AMERICAN ACADEMY ART
1014 AMERICAN CONSV MUSC
1025 AUGUSTANA COLLEGE IL
1027 AURORA COLLEGE
1052 BARAT COLLEGE
1057 BELLEVILLE AREA COL
1483 BLACK HAWK COL
1537 BLACK HAWK COL EAST
1484 BLACKBURN COLLEGE
1070 BRADLEY UNV
1982 CARL SANOBURG COLL
1082 CENTRAL YMCA CMTY COL
1114 CHICAGO CONSERVTRY C
1082 CHICAGO ST UNIV
1133 COLL LAKE COUNTY
1193 COLL OF ST FRANCIS
1083 COLLEGE OF OUPAGE
1038 COLUMBIA COLLEGE IL
1191 CONCORDIA COLLEGE IL
1160 DANVILLE AREA CMTY C
1182 DE LOURES COLLEGE
1163 DE PAUL UNV
1199 EASTERN ILLINOIS U
1200 ELGIN CMTY COL
1204 ELMHURST COL
1215 EMMAUS BIBLE SCH
1406 EUREKA COLLEGE
1209 EVANSTON HOSP CSC NSG
1220 FELICIAN CL ILLINOIS
1248 GEORGE WILLIAMS COLL
1256 GREENVILLE COL
1233 HIGHLAND CMTY COL
1307 ILLINOIS BENEDICTIN C
1317 ILLINOIS C OPTOMETRY
1312 ILLINOIS CENTRAL C
1315 ILLINOIS TECH
1318 ILLINOIS INST TECH
1319 ILLINOIS ST UNV
1397 ILLINOIS VALLEY C
1320 JOHN WOOD CMTY COL
1346 JOLIET JR COL
1351 JUDSON COLLEGE IL
1380 KAHNKEE CMTY COL
1315 KASKASKIA COL
1366 KENDALL COL
1391 KENNEDY KING COLL
1372 KNX COLLEGE
1472 LAKE FOREST COL
1438 LAKE LAND COLLEGE
1430 LEWIS UNV
1405 LINCOLN CHRISTIAN C
1428 LINCOLN COLLEGE
1415 LITTLE COMPANY MARY
1089 LOOP COL
1404 LOYOLA UNV CHICAGO
1410 LUTHERIAN DEAKNES HSP
1520 MACCORMACK JR COL
1435 MACMURRAY COL
1144 MALCOLM X COLL
1411 MALLINCKRODT COL
1525 MCKENRY COL
1456 MCKENDREE COL
1503 MTHOIST MED CTR IL
3232 MICHAEL REESE HSP
3259 MIOWEST C ENGINEERING
1470 MILLIKIN UNV
6092 MISSOURI INST TECH
1484 MISSOURI COLLEGE
1486 MOODY BIBLE INST
1524 MORRINE VALLEY C C
1269 MORRISON INST TECH
1489 MORTON COL
1567 MUNCIELIN COLLEGE
1567 NATIONAL C CHIROPRCT
1624 NATIONAL COL DEG CHGO

1551 NATIONAL COL EO EVAN
1553 NILES COL LOYOLA U
1758 NTRN CNTRL COL
1559 NORTH PARK COLL
1536 NORTHERN ILLINOIS U
1563 NORTHERN ILL UNV
1563 NORTHWESTN UN MED SCH
1563 NORTHWESTN UN DNTL HY
1604 NORTHWESTN N NURSING
1604 NORTHWESTN UNV
1605 OHIO INSTITUTE TECH
1584 OLIVE-HARVEY COLL
1596 OLIVET NAZARENE COLL
1030 OREGON BIBLE COLLEGE
1598 OUR LADY ANG FRAN SM
1619 PARKLAND COLLEGE
1621 PARKS COL ST LOUIS
1077 PRAIRIE ST COLL
1630 PRINCIPAL COL
1455 QUINCY COLLEGE
1659 RAVENSWOOD HSP MED C
1673 REND LAKE COL
1030 RICHARD J DALEY COLL
1976 RICHMOND CMTY COL
1670 ROBERT MORRIS COL IL
1674 ROCK VALLEY COLL
1665 ROCKFORD COL
1667 ROOSEVELT UNV
1667 ROSARY COL
1363 RUSH UNV C HLT SCI
3252 RUSH UNV COL NURSG
1750 SAKAI VALLEY COL
1733 SCHOOL ART INST CHGO
1716 SHERWOOD MUSIC SCH
1717 SHIMER COLLEGE
1759 SOUTHERN ILL U EOWRO
1777 SOUTHERN ILL UNV
1726 SOUTHRN ILL UNIV CAR
1128 SPERTUS COLL JUDEAICA
1154 SPOON RIVER COLL
1733 SPRINGFIELD COLLEGE
1747 ST FRANCIS HOSP EVAN
1756 ST FRANCIS HOSP PEOR
1763 ST MARY NAZARETH HSP
1768 ST XAVIER COLLEGE
1747 STATE COLLEGE
1806 THORNTON COM COLLEGE
1820 TRINITY CHRSTN COL
1810 TRINITY COLL IL
1962 TRITON COLLEGE
1111 TRUMAN COLLEGE
1851 U OF ILLINOIS CHGO C
1853 UNV ILLINOIS MEQ C
1836 UNV ILLINOIS URBANA
1836 UNV OF ILLINOIS SPRNG
1872 VANDERCOCK COLL MUS
1936 WABASH VALLEY COLL
1938 WAUBENSEN CMTY COL
1900 WEST SUBURBAN HOSPITAL
1905 WESTERN ILLINOIS UNV
1925 WILBUR WRIGHT COLL
1932 WILLIAM RYR HARPER C

INDIANA

1015 ANCILLA COL
1016 ANDERSON COLLEGE IN
1011 STATE UNV IN
1019 BETHANY COL IN
1073 BUTLER UNIVERSITY
1776 CALUMET COL
1642 DEACONESS HOSPITAL
1564 DECATUR COL
1195 EARLHAM COL
1228 FRANKLIN COLL IND
1227 FT WAYNE BIBLE COLL
1251 GOSHEN COL
1255 GRACE COLLEGE
1290 HANOVER COLLEGE
1343 HERRON SCH ART
1309 HOVY CROSS JR COL
1304 HUNTINGTON COL
1335 IND ST EVANSVILLE
1321 INDIANA CENTRAL UNV
1323 INDIANA INST TECH
1325 INDIANA PURDUE UNV
1322 INDIANA ST UNV RR
1324 INDIANA UNV BLOOMING
1336 INDIANA UNV FT WYNE
1338 INDIANA UNV GARY
1337 INDIANA UNV INDIANAP
1314 INDIANA UNV N ALBANY
1194 INDIANA UNV RICHMOND
1339 INDIANA UNV SO BEND
1286 INDIANA UNV CMB
1277 INDIANA VO TCH WYANS
1278 INDIANA VO TCH FTWY
1281 INDIANA VO TEG GARY
1281 INDIANA VO TEG INOP
1329 INDIANA VO TEG KKKO
1282 INDIANA VO TEG LAFAY
1334 INDIANA VO TEG MAGSN
1279 INDIANA VO TEG MUNC
1330 INDIANA VO TEG NORT
1218 LUTHERAN COLLEGE
1416 LUTHERAN HOSPITAL
1440 MANCHESTER COLLEGE
1442 MARIAN COLLEGE
1446 MARION COLLEGE
1518 MEMORIAL HOSPITAL
3140 MICHIANA COLL CMCMRC

1570 NORTHWOOD INST IN
1608 OAKLAND CITY COL BEDF
1585 OAKLAND CITY COL
1635 PARKVIEW MEMRAL HOSP
7700 PROFESSIONAL CAR INST
1638 PURDUE UNIV CALUMMET
1639 PURDUE UNIV FT WAYNE
1631 PURDUE UNIV W LAFAYE
1640 PURDUE UNIV WESTVILLE
1668 ROSE-HULMAN INST
1761 ST ELIZABETH HOSP IN
1693 ST FRANCIS COLL IN
1692 ST JOSEPHS COLLEGE
1760 ST JOSEPHS HOSPITAL
1704 ST MARY WOODS COLL
1703 ST MARYS COLLEGE IN
1705 ST MEINRAD COLL
1802 TAYLOR UNIV
1811 TRI STATE UNIVERSITY
5355 UNIV EVANSTON IL
1841 UNIV NOTRE DAME
1873 VALPARAISO TECH INST
1874 VALPARAISO UNIVERSITY
1877 VINCENTS UNIV
1955 WABASH COLLEGE

IOWA

6046 BRIAR CLIFF COLL
6047 BUREN VISTA COLL
6097 CENTRAL COLL
6099 CLARKE COLLEGE
6100 CLINTON CMTY COLL IA
6101 COE COLLEGE
6102 CORNELL COLL
6177 DES MOINES A C ANKN
6044 DES MOINES AR C BDON
6174 DIVINE WORD COLLEGE
6171 DORDT COLL
6168 DRAKE UNIVERSITY
6193 ELLSWORTH CMTY C
6214 FAITH BAPTIST BIB C
6249 GRACELAND COLL
6249 GRAND VIEW COLL
6232 GRINNELL COLLEGE
6288 HAWKEYE INST TECH
6312 INDIAN HILLS CC OTTM
6083 INDIAN HILLS CC CENTRY
6289 INDIAN HILLS CC HEIGHTS
6185 IOWA CNTRL CC EAGLER
6217 IOWA CNTRL CC FTDOOD
6392 IOWA CNTRL CC WEB CY
6196 IOWA LAKES CC ESHVIR
6306 IOWA STATE UNIV
6308 IOWA WESLEYAN COLL
6098 IOWA WSTRN COLLEGE
6202 IOWA WSTRN CC CNCLBL
6027 KIRKWOOD COLLEGE
6370 LORAS COLL
6375 LUTHER COLL
6497 MARSHALLTOWN INTL UNIV
6394 MARSHALLTOWN C C
6397 MARYCREST COLLEGE
6413 MORNINGSIDE COLL
6417 MOUNT MERCY COLL
6418 MOUNT ST CLARE COLL
6422 MUSCATINE CMTY COLL
6400 NORTH IOWA AREA C C
6504 NORTHWEST IA VOC INST
6503 NORTHWOOD COLL IA
7571 NORTHWEST IA TECH SCH
6593 PALMER COLL CHIROPRC
6530 SIMPSON COLL IA
6706 SIOUX EMPIRE COLL
6340 SOUTHEASTERN CC SOUTH
6048 SOUTHEASTERN CC NORTH
6122 SOUTHWSTRN CMTY COLL
6617 ST AMBROSE COLLEGE
6869 UNIV DUBUQUE
6307 UNIV NORTHN IOWA
6681 UNIVERSITY OF IOWA
6885 UPPER IOWA UNIV
6945 VERNARD COLL
6925 WALDORF COLLEGE
6926 WARTBURG COLLEGE
6936 WESLEYAN COLLEGE
6936 WESTERN TECH C C C
6943 WILLIAM PENN COLL

KANSAS

6305 ALLEN DO CMTY COLL
6301 BAKER UNIV
6056 BENEDICTINE COLL
6034 BETHANY COLL KS
6037 BETHEL COLLEGE
6131 BUTLER CMTY COLL
6088 CENTRAL COLL KS
6137 CLOUD CO CMTY COLL
6102 COFFEYVILLE CMTY C
6129 COLBY COMMUNITY COLL
6008 COMLEY COUNTY CMTY C
6166 DODGE CITY CMTY COLL
6167 DONNELLY COLLEGE
6335 EMPORIA STATE UNIV
6322 FORT HARRIS STATE UNIV
6298 FRIENDS BIBLE COLL
6224 FRIENDS UNIV
6219 FT SCOTT CMTY COLL
6246 GARDEN CITY CMTY COLL
6274 HESSTON COLL
6276 HIGHLAND CMTY COLL
6281 HUTCHINSON C C
6304 INDEPENDENCE CMTY C
6325 JOHNSON CO CMTY COLL
6333 KANSAS CITY, KS CMTY C

6615 KANSAS NEWMAN COLL
6334 KANSAS ST UNIV
6343 KANSAS TECHNCL INST
6337 KANSAS WESLEYAN
6576 LABETTE CMTY COLL
6392 LANHAMMAN CHRISTAN C
6391 MARYMOUNT COLL KS
6404 MCPHERSON COLL
6437 MID AMER NAZARENE C
6093 NEOSHO CO CMTY COLL
6391 NORTHWESTERN UNIV
6338 PITTSBURG STATE UNIV
6581 PRATT CMTY COLL
6670 SOUTHWESTERN COLLEGE
6622 ST JOHNS COLL KS
6391 ST MARY COLL LVNWRTH
6635 ST MARY OF THE COLLEGE
6690 ST MARYS COLL ST MARY
6684 STERLING COLLEGE
6387 TABOR COLL
6871 UNIVERSITY OF KANSAS
6928 WASHBURN UNIVERSITY
6103 WAY COL EMPORIA
6984 WICHITA ST UNIV

KENTUCKY

1098 ALICE LLOYD COLL
1019 ASBURY COLLEGE
1044 BELLARMINE COLL
1050 BEEBA COLLEGE
1071 BRESCIA COLL
1097 CAMPBELLVILLE COLL
1109 CENTRE COLLEGE KENTUCKY
1102 CUMBERLAND COLLEGE
1205 EASTERN KENTUCKY UNIV
1211 ELIZABETHTOWN C C
1249 GEORGETOWN COLL
1301 JENDERSON CMTY COLL
1328 HOPKINSVILLE CMTY C
1274 JEFFERSON CMTY C KY
1379 KENTUCKY BAPTIST HSP
1377 KENTUCKY CHRSTN COLL
1307 KENTUCKY MT BIB INST
1358 KENTUCKY ST UNIV
1369 KENTUCKY WESLEYAN C
1402 LEES JR COLL
1431 LINCOLN CHRISTIAN COLL
1467 MIDWAY COLL
1487 MOREHEAD ST UNIV
1494 MURRAY ST UNIV
1574 NORTHRN KY UNIV
1504 PADUCAH CMTY COLL
1626 PIKEVILLE COLL
1577 SEMINARY ST PIUS X
1779 SOMERSET CMTY COLL
1732 SOUTHEAST CMTY C KY
1532 SPALDING COLL
1690 ST CATHERINE COLL
1741 SUE BENNETT COLLEGE
1876 THOMAS MORE COLL
1307 TRANSYLVANIA UNIV
1825 UNION COLL KY
1234 UNIV KENTUCKY FTRKNO
1837 UNIV KENTUCKY LEXNTO
1838 UNIV LOUISVILLE
1929 WATSON COLLEGE
1901 WESTERN KENTUCKY UNIV

LOUISIANA

6503 CATECHARY COLL LA
1218 CHARITY HOSPITAL
6176 DELGADO COLL
6164 DELLRAND UNIVERSITY
6233 FAITH BIBLE COLLEGE
6284 GRAMBLING ST UNIV
6373 LA ST UNIV BAT ROUGE
6386 LA ST UNIV EUINICE
6355 LA ST UNIV SHREVEPR
6011 LOUISIANA JR C MILTON
6372 LOUISIANA TECH UNIV
6374 LOYOLA UNIV LA
6403 MCNEESE ST UNIV
6471 NEWCOMB COLL TULANE U
6375 NICHOLLS ST UNIV
6482 NORTHEAST LA UNIV
6492 NORTHWSTRN ST UNIV
6002 OUR LADY HOLY CROSS
6663 SOUTHERN UNIVERSITY
6001 SOUTHERN LA UNIV
6715 ST BERNARD PARISH CC
6689 ST JOSEPH SEMINARY C
6633 ST MARYS DOMINICAN C
6379 UNIV NEW ORLEANS
6672 UNIV SWSTRN LA
6975 XAVIER UNIV LA

MAINE

3930 BANGOR CMTY COLL
3076 BATES COLLEGE
3114 BEAL COLL
3089 BOWDOIN COLL
3700 CASCO BAY COLLEGE
3302 CENTRAL MAINE MED CEN
3309 CENTRAL MAINE V T INS
3309 COLBY COLL
3303 COLL ATLANTIC
3373 EASTRN MAINE MED CTR
3372 EASTRN MAINE VT INST
3440 HUSSON COLL
3401 JOHN F KENNEDY COLL
3476 KENNEBEC VLLY VT INS
3505 MAINE MARITIME ACAD
3552 MERCY HOSPITAL
3371 NORTHWEST MA VOC T INS
3701 PORTLAND SCH OF ART

3535 SOUTHRN MAINE VT INS
3538 ST JOSEPHS COLL ME
3903 ST MARYS GENL HOSP
3902 THOMAS COLL
3920 U MAINE PREGUE ISLE
3925 UNITY COLLEGE
3916 UNIV MAINE AT ORONO
3929 UNIV MAINE AUGUSTA
3506 UNIV MAINE FARMINGTN
3959 UNIV MAINE FT KENT
3931 UNIV MAINE MACHUS
3751 UNIV NEW ENGLAND
3691 UNIV SOUTHERN MAINE
3641 WASHINGTON CO VT INT
3960 WESTBROOK COLL

MARYLAND

5028 ALLEGANY CMTY COLL
5019 ANNE ARUNDEL C C
5738 ANTIETAM BIBLE COLL
5032 ANTIPOH UNIV MD
5696 ARLINGTON BIBLE COLL
4041 BOWIE ST COLL
5131 C C BALTIMORE HARBOR
5061 C C BALTIMORE LIBRTY
5101 CAPITOL INST TECH
5137 CATONSVILLE CMTY COLL
5099 CECIL CMTY COLL
5143 CHARLES CC CMTY COLL
9143 CHESAPEAKE COLL
5114 COLL NOTRE DAME MD
5890 COLUMBIA UNION COLL
5722 COPPIN COLL
5176 DUNDALK CMTY COLL
5122 EASTERN CHRISTIAN COLL
5196 ESSEX CMTY COLL
5230 FREDERICK CMTY COLL
5402 FROSTBURG ST COLL
5279 GARRETT CMTY COLL
5257 GOUCHER COLL
5290 HAGERSTOWN JR COL
5393 HARFORD CMTY COLL
5296 KENTUCKY MT BIB INST
3308 HOWARD CMTY COLL
5332 JOHNS HOPKINS UNIV
3730 LOYOLA COLL
5131 MACQUEEN GIBBS WILIS
5496 MARYLAND GENRL HOSP
5399 MARYLAND INST C ART
5393 MONTGOMERY COLL GMNT
5440 MONTGOMERY COLL ROCK
5414 MONTGOMERY COLL TACK
5616 MORGAN ST UNIV
5421 MOUNT ST MARYS C MD
5334 OTID JOHNS HOPKINS U
5637 PEABODY INSTITUTE
5545 PRINCE GEORGES C C
5403 SALISBURY STATE
5598 ST JOHNS COLL MD
3564 ST JOSEPH HOSPITAL
5627 ST MARYS COLLEGE MD
5602 ST MARYS SEM UNIV
5404 TOWSON STATE UNIV
5809 U S NAVAL ACADEMY
3759 UNIV MARYLAND HOSP
5814 UNIV BALTIMORE
5814 UNIV MARYLAND COL PK
5400 UNIV MARYLAND E SHRE
5835 UNIV MD BALTIMORE C
5888 VILLA JULIE COLL
5884 WASHINGTON BIBLE COLL
5888 WASHINGTON COLLEGE
5898 WESTRN MARYLAND COLL

MASSACHUSETTS

3002 AMERICAN INTL COLL
3003 AMHERST COLLEGE
3005 ANNA MARIA COLL
3011 AQUINAS JR C MILTON
3013 AQUINAS JR C NEWTON
3777 ART INSTITUTE BOSTON
3009 ASSUMPTION COLLEGE
3013 ATLANTIC UNION COLL
3007 BABSON COLL
3070 BAY PATH JR COLL
3126 BAY STATE JUNIOR CLG
3787 BAYSTATE MED CTR
3078 BECKER JR CL-ISTR CM
3079 BECKER JR C WRSTR CM
3096 BENTLEY COLL
3107 BERKELEE COLL MUSIC
3105 BERSHIRE CHRSTN COLL
3083 BIRKBECK CMTY COLL
3083 BOSTON COLL
3084 BOSTON CONSV MISC
3085 BOSTON SCH OCC THRPY
3086 BOSTON STATE COLL
3087 BOSTON UNIVERSITY
3091 BRAFORD COLL
3092 BRANDEIS UNIV
3097 BRIDGEWATER ST COLL
3110 BRISTOL COMMUNITY COLL
3112 BROCKTON HOSPITAL
3123 BUNKER HILL CMTY COLL
3098 BURBANK HOSPITAL
3099 BUTRICK SCHOOL
3289 CAGE COD CMTY COLL
3308 CENTRAL NEW ENG COLS
3277 CHAMBERLAYNE JR COLL
3079 CLARK UNIV
3282 COLL HOLY CROSS
3283 COLL OUR LADY ELMS
3285 CURRY COLL
3252 DEAN JR COLL
3371 EAST COAST AERO TECH
3363 EASTRN NAZARENE COLL

3367 EMERSON COLL
3368 EMANUEL COLL MA
3369 ENDICOTT COLL
3375 ESSEX AGRI TECH INST
3391 FISHER JR COLLEGE
3518 FIBURG ST COLLEGE
3392 FORSYTH SCH DEPT HYG
3519 FRAMINGHAM STATE COL
3397 FRAMINGHAM UNION HSP
3394 FRANKLIN INST BOSTON
3390 GORDON COLL
3420 GREENFIELD CMTY COLL
3447 HAMPSHIRE COLL
3454 HARVARD U KENNEDY S
3392 HARVARD UNIV--GRAS
3434 HARVARD-RADCLIFFE
3438 HEBREW COLL
3449 HELLENIC COLL
3437 HOLYOKE CMTY COLL
3473 KATHERINE GIBBS SCH
3287 LABOURE JR COLL
3493 LAWRENCE GENERAL HSP
3488 LAWRENCE MEM HOSP
3489 LEONIMSTER HOSPITAL
3483 LESLEY COLL
3487 LITTLE GENERAL HOSP
3514 M I T
3500 MARYLAND COLLEGE
3471 MARIAN CT JR CLG BUS
3548 MARY BROOKS SCHOOL
3294 MASS BAY CMTY COLL
3512 MASS C PHR AL HLT SC
3516 MASS COLL ART
3515 MASS MARITIME ACAD
3508 MASS STATE COLL SYST
3549 MASSASOIT CMTY COLL
3525 MERRIMACK COLL
3584 MIDDLESEX C MA
3529 MOUNT HOLYOKE COLL
3530 MOUNT IDA JR COLL
3543 MOUNT WACHUSETT C C
3507 NEW ENG CONSV MUSIC
3671 NEW ENG DECNSS HOSP
3645 NEW ENG SCH ART DESN
3676 NEW ENGLAND BAPT HSP
3511 NEW ENGLAND C OPTMITY
3659 NEW ENGLAND JUNIOR COLL
3672 NEWTON WELLSLEY HOSP
3666 NICHOLS COLLEGE
3521 NORTH ADAMS ST COLL
3651 NORTH SHORE C C
3641 NORTHEAST INST IND T
3667 NORTHERN UNIV
3674 NORTHRN ESSEX C C
3697 PETER BERT BRIGHAM
3651 PINE MANOR COLLEGE
3713 QUINCY JR COLL
3714 QUINSIGAMOND C C
3723 REGIS COLLEGE
3740 ROXBURY JR COLLEGE
3322 SALEM STATE COLL
3779 SCH WORCUT ART MUSEM
3794 SCHOOD MUSH FINE ART
3761 SIMMONS COLLEGE
3762 SIMONS ROCK OF BARD
3762 SMITH COLLEGE
3799 SOMERVILLE HOSPITAL
3763 SPRINGFIELD COLL
3798 SPRINGFIELD TECH C C
3773 ST ELIZABETHS HOSP
3772 ST HYACINTH COLL SEM
3795 ST JOHNS SEM COLL
3729 ST VINCENT HSP NURS
3771 STONEHILL COLL
3771 SUFFOLK UNIV
3803 SWAIN SCH DESIGN
3399 TUFTS--FLETCHER SCH
3919 TUFTS UNIV JACKSON C
3917 UNIV MASS AMHERST
3924 UNIV MASS BOSTON
3786 UNIV MASS DARTMOUTH
3949 UNIV MASS STCKBR SCH
3911 UNIVERSITY OF MASS
3762 VESPER GEORGE SC COLL
3755 WELLESLEY COLLEGE
3958 WENTWORTH INST TECH
3962 WESTERN NEW ENGLAND
3520 WESTFIELD ST COLL
3963 WHEATON COLL MA
3964 WHELOCK COLL
3965 WILLIAMS COLLEGE
3972 WORCESTER CITY HOSP
3976 WORCESTER INDUS TECH
3976 WORCESTER POLY INST
3324 WORCESTER ST COLL
3979 WORCESTR HANNAH HSP

MICHIGAN

1001 ADRIAN COLL
1007 ALBION COLL
1008 ALMA COLL
1011 ALPENA CMTY COLL
1038 ANDREWS UNIV
1010 AQUINAS COLLEGE
1049 BAY DE NOC CMTY COLL
10774 BLODGETT MEMORIAL HOSP
3254 BRONSON MESH HOSP
1044 BUTTERWORTH HOSPITAL
1095 CALVIN COLL
6018 CENTR CREATIVE STDs
1106 CENTRAL MICHIGAN UNIV
1125 CHARLES S MOTT C C
1123 CHERRY COLLEGE
1083 CLARENCE COLLEGE
1183 DAVENPORT BUS GRD TECH
7235 DAVENPORT CL-LANSING

1816 DELTA COLL
1181 DETROIT CL BUS DBRBN
1170 DETROIT INST TECH
1201 EASTERN MICHIGAN UNV
1222 FERRIS STATE INST
1246 GENERAL MOTORS INST
1261 GLEN OAKS CMTY COLL
1250 GOGEBIC CMTY COLL
1253 GRAND RAPIDS BAPT C
1253 GRAND RAPIDS JR COL
1258 GRAND RAPIDS JR COL
1293 HENRY FORD CMTY COLL
3177 HENRY FORD HOSPITAL
1294 HIGHLAND PARK C C
1304 HILLSDALE COLLEGE
1301 HOPE COLLEGE
3234 HURLEY MEDICAL CTR
3400 JACKSON CMTY COLL
1601 JOHN WESLEY DOWSSO
1342 KANSAS COLLEGE
1365 KALAMAZOO COLL
1378 KALAMAZOO VALLEY C C
1375 KELLOGG CMTY COLL
1376 KENDALL SCH O DESIGN
1382 KIRTLAND COMM COLL
1137 LAKE MICHIGAN COLL
1421 LAKE SUPERIOR ST COLL
1414 LANSING COMM COLLEGE
399 LAWRENCE INST TECH
1425 LEWIS BUSINESS COLLEGE
1521 MACOMB CC MT CLMN
1722 MACOMB CC WARREN
1324 MACONIA COLL
1452 MARYGROVE COLL
1460 MERCY COLL DETROIT
1516 MICH CHRISTIAN COLL
1465 MICHIGAN STATE UNIV
1518 MICHIGAN TECH UNIV
1523 MID MICHIGAN C C
1514 MONROE CO CMTY COLL
1522 MONTCALM CMTY COLL
1458 MUSKOGEE CMTY COLL
1495 MUSKOGEE CMTY COLL
1554 NAZARETH C KALAMAZOO
1569 NORTH CNTRL MICH COL
1569 NORTHWESTERN MICHIGAN UNV
1560 NORTHWOOD INST
1564 NORTHWESTRN MICH COLL
1607 OKLANO C C BLFMD HL
1497 OKLAND UNIVERSITY
1517 OLIVET COLL
1672 REFORMED BIBLE COLL
1686 SACRED HEART SEM
1766 SAGINAW VLY ST COLL
1764 SCHOELLER COLL
1764 SCHOELLER COLL
1719 SIENA HEIGHTS COLL
1783 SOUTHWSTRN MICH COLL
1732 SPRING ARBOR COLL
1732 ST CLAIR CO CMTY COLL
1753 ST MARYS COLL MI
1743 SUOMI COLL
1835 UNIV DETROIT
1861 UNIV MICHIGAN BARBORN
1861 UNIV MICHIGAN ANN AR
1853 UNIV MICHIGAN FILL
1935 WASHENAW CMTY COLL
1937 WAYNE CO CMTY COLL
1937 WAYNE STATE UNIV
1941 WEST SHORE CMTY COLL
1902 WESTERN MICH UNIV
1167 WILLIAM TYNDALE COLL

MINNESOTA

3183 ALEXANDRA AR VO TEC
6024 ANOKIA RAMSEY C C
6278 ARROWHEAD CC HIBBING
6309 ARROWHEAD STATE COL
6432 ARROWHEAD CC MESABI
6194 ARROWHEAD CC VERMILI
6014 AUGSBURG COLL
6017 AUSTIN CMTY COLL MN
1674 BEMIDJIE STATE COLL
6035 BETHANY LUTHERAN COLL
6038 BETHEL COLLEGE
6045 BRAINERD CMTY COLL
6081 CARLETON COLL
1105 COLL OF ST MEDICID
6107 COLL ST CATHERINE
6107 COLL ST SCHOLASTICA
6108 COLL ST TERESA
1111 CONCORDIA COLLEGE
6113 CONCORDIA COL MOORHD
6114 CONCORDIA COL SPAUL
6142 CROSIER SEMINARY J C
6435 DR MARTIN LUTHER KING
6253 GOLDEN VLY LUTH COLL
6253 GUSTAVUS ADOLPHUS C
6265 HAMLINE UNIV
6314 INVER HILLS ST JR C
6388 LAKESIDE CMTY COLL
6390 WALESTLER COLLEGE
6677 MANKATO ST C
6434 METROPOLITAN C C
6411 MINNEAPOLIS CMTY COLL
6411 MINNEAPOLIS CMTY DS
6478 MINNESOTA BIBLE COLL
6088 MOOREHEAD STATE UNIV
6501 NORMANDALE CMTY COLL
6498 NORTH HENNEPIN C C
6500 NORTH HENNEPIN C C
6516 NORTHWESTRN COLL CHIR
6489 NORTHWSTRN COLL MN
6610 ROCHESTER CMTY COLL
6703 SOUTHWESTERN COLLEGE MI
7707 ST CLOUD SCH NURSING
6679 ST CLOUD ST UNIV

6524 ST JOHNS UNIV MN
6532 ST MARYS COL NY
6537 ST MARYS JR COL
6538 ST OLAF COL
6539 ST PAUL BIBLE COL
6599 UNIV MINN TECH COLL
6874 UNIV MINNESOTA DUTH
6890 UNIV MINNESOTA MORRS
6874 UNIV MINNESOTA MPLS
6893 UNIV MINNESOTA TECH
6874 WILLIAM COMA COLLEGE
6560 WYONDA ST UNIV
6945 WORTHINGTON CMY COL

MISSISSIPPI

1295 ALCONR ST UNIV
1055 BELHAVEN COL
1066 BLUE MOUNTAIN COL
1122 CLARKE COLLEGE MS
1122 COAHOMA JR COL
1142 COPHIAN LINCOLN JR C
1163 DELTA ST UNIV
1196 EAST CNTRL JR COL
1197 EAST MISSISSIPPI JC
1295 HINDS JR COL
1299 HOLMES JR COL
1326 ITAWAMBA JR COL
1341 JACKSON ST UNIV
1344 JONES CO COL
1450 MARY HOLMES COLLEGE
1461 MERIDIAN JR COL
1471 WILLISAPS COL
1477 MISS COLL
1487 MISS DELTA JR COL
1354 MISS GUF CST JR GAUT
1353 MISS GUF CST JR GALT
1623 MISS GUF CST JR PERK
1623 MISS INDUSTRIAL COL
1480 MISS STATE UNIV
1481 MISS UNIV WOMEN
1482 MISS VALLEY ST UNIV
1857 NORTHWEST MISS JR UN
1622 NORTH MISS JR UN
1544 PEARL RIVER JR COL
1529 PENTON NORMOUNDIS
1669 RUST COLL
1781 SOUTHERN MISS BAPT COL
1729 SOUTHWEST MISS BAPT COL
1780 TOUGALOO COL
1840 UNIV MISSISSIPPI
1979 UNIV STRHN MISS
1858 UTICA JR COL
1923 WESLEY COLL MS
1920 WILLIAM CAREY COL
1924 WOOD COUNTRY COL

MISSOURI

6109 AVILA COL
6331 CALVARY BIBLE COL
6628 CATHOLIC GLENNON COL
640 ADRIAN JR COL
6689 CENTRAL METH COLLEGE
6085 CENTRAL BIBLE COL
6145 CENTRAL CHRSTN C BIBL
6090 CENTRAL MISSOURI ST C
6092 COLUMBIA COL
6112 CONCEPTION SEM COL
6120 COTTEY COL
6138 CROWDER COL
6123 CULVER ST STOCKTON COL
6169 DRURY COL
6198 EVANGEL COL
6216 FONTBOINE COL
6241 GATEWAY GLD EVANGISM
6374 HANNAH COL
6269 HARPIS-STOWE ST COL
6320 JEFFERSON COLLEGE
6329 JEFFISON HOSP ST LOUIS
6330 KANSAS CITY ART INST
6338 KEMPER MILITARY SCH C
6366 LINCOLN UNIV MO
6367 LONGWOOD COLLS
6359 LONGVIEW CMY COL
6374 MAPLE WOODS CMY COL
6399 MARYVILLE COL ST LOU
6323 MINERAL AREA COL
6322 MISSOURI STRPHN ST C
6323 MISSOURI VALLEY COL
6625 MISSOURI WESTRN ST C
6414 MOBERLY AREA JUNIOR
6483 NORTHEAST MO ST UNIV
6488 NORTHWEST MO ST UNIV
6488 PARK COLLEGE
6324 PENN VALLEY CMY COL
6612 RESEARCH COL NRSNG
6611 ROCKHURST COL
6611 SCHOOL OF DENT
6655 SOUTHEAST MO ST UNIV
6664 SOUTHWEST BAPTIST UN
6665 SOUTHWEST MO ST UNIV
6515 ST LOUIS CC FLOR VLY
6276 ST LOUIS CC FORT PK
6430 ST LOUIS CC MERMACE
6626 ST LOUIS COL PHAR
6627 ST LOUIS COLNS MUSIC
6627 ST LOUIS COLNS MUSC
6634 ST MARYS C OFALLON
6636 ST MARYS SEM COL
6691 ST PAULS COL
6691 STATE FAIR CMY COL
6683 STEPHENS COLLEGE
6816 TARKIO COL
6836 THREE RIVERS C C
6830 TRENTON JR COL
6830 UNIV MISSOURI COLUMB
6872 UNIV MISSOURI KANSKY

6876 UNIV MISSOURI ROLLA
6889 UNIV MISSOURI ST LOUS
6937 WASHINGTON UNIV
6933 WEBSTER COLLEGE
6934 WENTWORTH MIL ACAD
6937 WESTMINSTER COLLEGE
6941 WILLIAM JEWELL COL
6944 WILLIAM WOODS COL

MONTANA

4227 BUTTE VOC TECH CENTR
4277 BUTTE COLLEGE
4058 COLT GREAT FALLS
4280 DAWSON C C
4293 EASTERN MONTANA COL
4278 FLETCHER VALLEY C C
4081 MILES CMY COL
4487 MONTANA C MIN SCI TE
4488 MONTANA STATE UNIV
4538 NORTHRN MONTANA COL
4403 ROCKY MOUNTAIN COL
4489 UNIV MONTANA
4945 WESTERN MONTANA COL

NEBRASKA

6053 BELLEVUE COL
6058 BRYAN MEMORIAL HOSP
6136 CENTRAL COMMUNITY COL
6584 CENTRAL CMY C PLATTE
6427 CHADRON ST COL
6106 COLT ST MARY
6116 CONCORDIA TCHRS C NE
6121 CREIGHTON UNIVERSITY
6127 DANA COL
6165 DONNE COLLEGE
6248 GRACE COLLEGE BIBLE
6270 HASTINGS COL
6467 KEARNEY STATE COLLEGE
6427 MARY LANNING MEM-HSP
6401 MCCOOK CMY COL
6510 METHODIST SCH NRSNG
6538 METROPOLITAN TECH CM
6168 NORTH PLATTS JR COL
6406 NIDLAND LUTHERAN COL
6470 NEBRASKA WESLEYAN U
6648 NEBRASKA WESTRN COL
6473 NEBRASKA WESTRN CC
6421 NEBRASKA WESTERN COL
6215 SOUTHEAST C C NE
6747 STATE UNIV NEBRASKA
6877 U NEBRASKA LINCOLN
6811 U NEBRASKA MED CTR
6865 UNION COL NE
6420 UNIV NEBRASKA OMAHA
6469 WAYNE ST COL
6957 WESTERN NE TECH COL
6984 YORK COL NE

NEVADA

4136 CLARK CO CMY COL
4281 OEEF SPRINGS COL
4281 NORTHERN NEVADA C C
4580 OLLI COL
4861 UNIV NEVADA LAS VEGA
4844 UNIV NEVADA RENO

NEW HAMPSHIRE

3793 CATHOLIC MED CR EAST
3281 COLBY-SAWYER COLLEGE
3304 CONCORD HOSP SCH NUR
3281 DANIEL WEBSTER COL
3351 DARTMOUTH COLLEGE
3395 FRANKLIN PIERCE COL
3452 HESSER COL
3462 HENRIE STATE COLLEGE
3562 MAGDO COL
3553 MCINTOSH COLLEGE
3646 N H VOC TEC C BERLIN
3684 N H VOC TEC C CLAREM
3643 N H VOC TEC C MANCHE
3643 N H VOC TEC C NASHUA
3677 NATHANIEL HAWTHORN C
3657 NEW ENGLAND COLLEGE
3649 NEW HAMPSHIRE COL
3647 NEW HAMPSHIRE TEC IN
3661 NEW HAMPSH YTC-PORT
3670 NORTHE DAME COL NH
3690 PLYMOUTH ST COL
3721 RIVIER COL
3748 ST ANSELMO COLLEGE
3892 THOMAS MORE INST L A
3918 UNIV NEW HAMPSHIRE

NEW JERSEY

2009 ACADEMY COLLEGE SIST
7033 ATL CUMPTON COL XRAY
2024 ATLANTIC CMY COL
2032 BAYONNE HOSPITAL
2032 BERGEN CMY COL
2061 BERKELEY SCHOOL
2064 BLOOMFIELD COL
2181 BROOKDALE CMY COL
2034 BURLINGTON COL
2072 CALDWELL COL
2121 CAMDEN COL
2080 CENTENARY COLLEGE
2080 CHARLES E GREENGL SCH
2139 CHRIST HOSPITAL
2107 CLARA MAASS MEM HOSP
2090 COLT ST ELIZABE TH
2107 COUNTY COL OF MERIS
1118 CUMBERLAND COL
2191 OGN BOSCO COL
2193 DREW UNIV
2239 EDWARD WILLIAMS COL
2232 ELIZABETH GEN H DISP

2219 ENGLEWOOD HOSP ASSOC
4235 ESSEX CO COL
2237 FAIRCHILD COLLEGE
2255 FAIRLEIGH DINKNS RADS
2253 FAIRLEIGH DINKNS TEAN
2253 FAIRLEIGH DINKNS WAYN
2281 FAIRLEIGH DINKNS COL
2274 GERGIANIAN COURT COL
2275 GLASSBORO ST COL
2180 GLOUCESTER CO COL
2310 HELENE FULD MED CNTR
2316 HELENE FULD SCH NURS
2304 HOLY NAME HOSPITAL
2191 HUDSON CO CMY COL
2322 IMMACULATE CONCP SEM
2316 JERSEY CITY COL
2258 JERSEY SHORE MED CTR
2317 KEAN COL N J
2444 MERCER CO CMY COL
2444 MERCER COL SCH CNTR
2441 MIDDELSEX COLLEGE
2416 MUMMOUTH COL NJ
2320 MONTCLAIR STATE COL
2427 MOUNTAINSIDE HOSPITAL
2452 MUEHLBACH HOSP NURS
2513 NEW JERSEY INST TECH
2566 NORTHEASTERN B C
2630 OCEANO CO COL
2538 ORANGE MEMORIAL HOSP
2631 OUR LADY LOURDES SCH
2694 PASSIAC CO CMY COL
2719 PLAZA SCHOOL
2633 PLAZA TECH INST
2712 PRINCETON UNIV
2884 RAMAPO COL N J
2758 RIDER COL
2838 RUTGERS U C ENGINEER
2838 RUTGERS U C PHARMACY
2092 RUTGERS U CAS CAMDEN
2170 RUTGERS U COOK COL
2192 RUTGERS U DOUGLASS C
2184 RUTGERS U LIVINGSTON
2168 RUTGERS U SCH NWK
2736 RUTGERS U SCH ARTS
2742 RUTGERS U UNIV C CAM
2777 RUTGERS U UNIV C N B
2777 RUTGERS U UNIV C NWK
2789 RUTGERS COL NURSING
2512 RUTGERS-NEWARK CAS
2927 SAINT BARNABAS MED C
2868 SALEM CMY COL
2811 SETON HALL UNIV
2867 SOMERSET CO COL
2862 SOMERSET CO TECH INS
2877 ST FRANCIS CMH C TR
2858 ST FRANCIS MED C TRN
2806 ST PETERS COL
2877 ST PETERS MEDICL CTR
2819 STEVENS INST TECH
2889 STOCKTON STATE COL
2889 SUSSEX COMM COL NJ
2748 THOMAS A. EDISON STATE
2519 TRENTON STATE COL
2941 UNION CO TECH INST
2931 UNION COUNTY COLLEGE
2930 UPSALA COLLEGE
2919 US M A PREP SCHOOL
2914 WESTMINSTER CHOIR C
2518 WILLIAM PATERN C NJ

NEW MEXICO

4116 COLLEGE SOUTHWEST
4676 COLLEGE OF SANTA FE
4299 EASTERN NM UNIV PORT
4297 EASTERN NM WEL ROSW
4532 NEW MEX HIGHLANDS UN
4533 NEW MEX INST MIN TEC
4533 NEW MEX JR COL
4534 NEW MEX MILITARY INS
4012 NEW MEX ST U ALAMAG
4547 NEW MEX ST UNIV CARL
4531 NEW MEX ST UNIV U PK
4732 SAN JUAN COLLEGE
4740 ST JOHNS COLLEGE
4068 UNIV ALBUQUERQUE
2116 UNIV OF NEW MEXICO
4535 WESTERN NEW MEX UNIV

NEW YORK

2001 ACADEMY AERONAUTICS
2003 ADELPHI UNIV
2017 ANDRONACK CMY COL
2018 ALBANY BUSINESS COL
2013 ALBANY COL PHARMACY
2015 ALBANY MEDICAL CNTR
2005 ALFRED UNIVERSITY
2037 AMERICAN COLLEGE OF ART
2016 ARNOT-ODGEN MEM HOSP
2037 BARD COL
2038 BARNARD COL
2064 BERKELEY SCHOOL NY
2034 BERNARD N BARUCH COL
2031 BETH ISRAEL MED CTR
2063 BORO MANHATTN CC CUNY
2051 BROOK CMY COL
2064 BROOKLYN COL
2048 BROOME CMY COL
2058 BRYANT STRTN BUSI I
2060 BUFFALO GENERAL HOSP
C C FINGER LAKES
2070 C W POST CENTER UNIV
2073 CANISUS COL
2010 CAYUGA CO CMY COL
2018 CAZENOVA COL
2081 CATTARAUGUS BUS INST
2083 CITY COL

2084 CLARKSON COL
2135 CLINTON CMY COL NY
2136 COL WHITE CTR PLAINS PACE
2098 COLGATE UNIV
2112 COL INSURANCE
2088 COL MT ST VINCENT
2188 COL NEW ROCHELLE
2091 COLL ST ROSE
2078 COL STATE ISLAND
2110 COLUMBIA MEMRL HOSP
2128 COLUMBIA U ALP
2174 COLUMBIA U BUSINESS
2118 COLUMBIA U COLUMBIA C
2094 COLUMBIA U DENTAL
2183 COLUMBIA U DENTL HGY
2159 COLUMBIA U GSAS
2118 COLUMBIA U JOURNALISM
2172 COLUMBIA U LAW
2133 COLUMBIA ULIBRARYSER
2190 COLUMBIA U FBLG HLTH
2190 COLUMBIA U PHYS & SURG
2179 COLUMBIA U SCH GEN ST
2129 COLUMBIA U SCH ARC PLNG
2111 COLUMBIA U SCH ENGR
2168 COLUMBIA U SCH NURS
2170 COLUMBIA U ARTS
2161 COLUMBIA U SIPA
2158 COLUMBIA U SOCIAL WORK
2135 COLUMBIA U TEACHERS C
2146 COLUMBIA U TCHRS C
2096 CONCORDIA COLLEGE NY
2097 COOPER UNIV
2109 CORNELL MED SCHOOL
2101 CORNELL UNIV
2106 CORNING CMY COL
2107 CROUSE IRVING MEM HS
2075 CTDL C IMMVC CNCPNT
3361 CUNYAC INH AMER
2768 CUNYAC-GRAB CENTER
2768 DAMEEN COLLEGE
2109 DOMINICAN COL
2111 DOWLING COL
2138 DUNELLS RUS CMY COL
2197 DUYOVILLE COL
2224 EASTMAN SCHOOL OF MU
2297 EINSTEIN COL MEDICIN
2296 EISENHOWER COLLEGE
2231 ELIZABETH SETON COL
2212 ELLIS HOSPITAL
2226 ELMIRA COL
2211 ERIC C C CITY CAMP
2211 ERIC C C NORTH CAMP
2211 ERIC C C SOUTH CAMPS
2203 EUGENIO M DEHOST C C
2257 FASHION INST TECH
2246 FIORELLO LGUARDIA C C
3142 FIVE TOWNS COL
2269 FLUSHING HOSP S NURS
2298 FORDHAM UNIV
2248 FRIENDS WORLD COL
2255 FULTON-MONTGOMERY CC
2272 GENESIE CMY COL
2286 HAMILTON COL
2293 HARLEM HSP CTR PHYSIC
2311 HARRISMAN COLLEGE
2313 HARTWICK COLLEGE
2290 HERREW UNIV COL
2289 HERREW UNIV US STDs
2316 HERKIMER CO CMY COL
2313 HILBERT COL
2040 HOBART COL
2295 HOFSTRA UNIV
2298 HOLY TRINITY ORTHOX S
2317 HOUGHTON COL BUDF S
2297 HOUGHTON COL HIGHTON
2300 HUDSON VLY CMY COL
2301 HUNTER COL
2324 IONA COL
2325 THACA COL
2331 ITRI TORAH RESRCH IN
2346 JAMESTOWN BUS COL
2335 JAMESTOWN CMY COL
2333 JEFFERSON CMY COL
2336 JEWISH HSP & MED CTR
2319 JEWISH THEOL SEM AM
2118 JOHN JAY CRIM JUST
2340 JULLIARD SCHOOL
2340 JUNIOR COL ALBANY
2355 KATHARINE GIBBS S NY
2350 KEUKA COLLEGE
2352 KINGS COLLEGE NY
2358 KINGSTON COLLEGE
2380 LABORATORY INST MDSC
2376 LATIN AMERICAN INST
2312 LEHMAN COL
2366 LE MOYNE COL
2377 LONG BEACH HIGHL HSP
2369 LONG ISLAND U BROOKL
2395 MANHATTAN COL
2396 MANHATTAN SCH MUSIC
2396 MANHATTANVILLE COL
2398 MANNES COL MUSIC
2434 MARIA COL ALBANY
2435 MARIA REGINA COL
2400 MARIST COL
2405 MARYMOUNT COLLEGE
2436 MATER DEI COL
2422 MEDALLIE COL
2460 MEDICAL COLLEGE
9143 MEMORIAL HOSP SC RAD
2472 MEMORIAL HOSPITAL
2409 MERCY COL
2212 MEYER MEMORIAL HOSP
2456 MILLARD FILLMORE HSP
2451 MISERICORDIA HOSP

2414 MOHAWK VALLEY C C
2413 MOLLOY COL
2413 MONROE COLLEGE
2423 MOUNT SAINT MARY COL
2453 MOUNT VERNON HOSPITAL
2363 NASSAU CMY COL
2511 NASSAU COLLEGE
2521 NEW SCHOOL SOC RES
2550 NEW YORK CITY TECH C
2963 NEW YORK CITY TECH C
2561 NEW YORK INST TECH
2562 NEW YORK INST TECH
2596 NEW YORK UNIV-GSAS
2599 NEW YORK UNIV-LAW
2568 NIAGARA CO CMY COL
2568 NORTH HAVEN COL
2571 NORTH COUNTRY C C
2560 NYACK COL
2627 ONONDAGA CMY COL
2625 ORANGE CO CMY COL
2625 OUR LADY HOSP CENTER
2685 PAU PLSNLTV BRCLF
2635 PAUC UNIV NYC
2638 PARSONS SCH DESIGN
2648 PAUL SMITHS C ART SC
2669 POLYCONC INST NY BRK
2695 POLYTECH INST NY
2691 PRATT INSTITUTE
2674 PRATT UNIV PHMX S DSEN
2746 QUEENS COLLEGE
2747 QUEENS C SP PRG HUM
2750 QUEENS COL NY
2751 QUEENSBOROUGH C C
2751 QUEENSBOROUGH UNIV
2757 RENSSELAER POLY INST
2759 ROBERTS WESLEYAN COL
2770 ROCHESTER BUS INST
2770 ROCHESTER DENTL ASST
2771 ROCHESTER INST TECH
2768 ROCKEFELLER UNIV
2761 ROCKLAND CMY COL
2771 RUSSELL SAGE C EVE D
2793 SALT SPRING COLLEGE
2810 SARAH LAWRENCE COL
2879 SCHENECTADY CO C C
2835 SCHOOL VISUAL ARTS
2068 SCHWARTZ COL PHRMCY
2831 SEMA COLLEGE
2837 SISTERS CHARITY HOSP
2815 SKIDMORE COL
2853 SOUTHAMPTON COLL LUI
2793 ST BONAVENTURE UNIV
2847 ST ELIZABETH HOSP
2796 ST FRANCIS COL NY
2831 ST JAMES MERCY HOSP
2798 ST JOHN FISHER COL
2894 ST JOHNS RHOE HSP
2799 ST JOHNS UNIV JAMCA
2842 ST JOHNS UNIV STA IS
2805 ST JOSEPHS C BROOKLN
2805 ST JOSEPHS MONTGOMERY CC
2825 ST JOSEPHS H SYRACUS
2848 ST JOSEPHS HS ELMRA
2857 ST LAWRENCE UNIV
2805 ST MARYS HOSPITAL
2807 ST THOMAS AQUINAS C
2834 ST VINCENTS HOSP NYC
2749 ST VINCENTS MED C SI
2849 SUFFOLK CO CM BRENTW
2846 SUFFOLK COLLEGE
2827 SUFFOLK CO CC SELDEN
2855 SULLIVAN CO CMY COL
2524 SUNY A&T COBLESKILL
2525 SUNY A&T DELHI
2525 SUNY A&T DELHI
2523 SUNY AGR TEC C CANTN
2526 SUNY AGR TEC C FARMG
2527 SUNY AGR TEC C MORRS
2527 SUNY ALBANY
2537 SUNY COL BROCKPORT
2538 SUNY COL CORTLAND
2530 SUNY COL ENVL SCI
2530 SUNY COL FREDONIA
2530 SUNY COL GENESEO
2541 SUNY COL NEW PALTZ
2866 SUNY COL O WESTBURY
2542 SUNY COL ONEONTA
2542 SUNY COL PLATTSBURGH
2545 SUNY COL POTS DAM
2878 SUNY COL PURCHASE
2533 SUNY COLLEGE BUFFALO
2543 SUNY COLLEGE CHEWESG
2543 SUNY CTR BINGHAMTON
2548 SUNY CTR STONY BROOK
2534 SUNY DOWNST MED CTR
2540 SUNY DOWNTOWN
2891 SUNY HLTH SC C STNYB
2536 SUNY MARITIME COL
2547 SUNY UPSTATE MED CTR
2543 SUNY STATE COL OF PR AD
2523 SYRACUSE UNIVERSITY
2515 TECHNICAL CAREER INS
2793 TICE-COBBURN SCH FASH
2904 TOMPKINS CORTLAND CC
2862 TOWN OF SCHOEN
2914 TRAFALGAR SCH FASH
2856 TROICRAE COL
2938 ULSTER CO CMY COL
2920 UNIV ALBANY
2920 UNIV ALPCTN PRCS CN
2928 UNIV ROCHESTER
2923 US MERCHANT MARINE
2924 US MILITARY ACADEMY
2932 UTICA COL SYRACUSE U
2953 VASSAR COL

2962 VILLA MARIA HALL SEM COL
2965 WAGNER COLL NY
2966 WEBB INST NAVAL ARCH
2970 WELLS COLL
2972 WESTCHESTER CMY COL
2978 WILLIAM SMITH COLL
2988 WOOD SCHOOL
2990 YERKISHA UNIV
2992 YORCK COLL NY

NORTH CAROLINA

5732 AMERICAN BUS FASH IN
5101 APPALACHIAN ST UNIV
7029 ASHEBORO COLLEGE
5033 ASHEVIL-BUNCOMBE TCH CL
51016 ATLANTIC CHRSTN COL
5021 ATLANTIC COAST CONF
5052 BARBER-SMITH COL
5055 BELMONT ABBEY COLL
5023 BENNETT COLLEGE
5077 BLANTONS JUNIOR COLL
5084 BOWMAN GRAC SCH MED
5067 BREVARO COLL
5136 CABARRUS MEM HOSP
5146 CALDWELL C C TECH IN
5100 CAMPBELL UNIVERSITY
5094 CAPE FEAR TECH INST
5092 CARETERET TECH COLL
5094 CATAWBA COLLEGE
5098 CATAWBA VLY TECH COLL
5147 CENTRL CARO TECH COLL
5102 CENTRL PIEDMONT C C
5129 CHARLOTTE MEMRL HOSP
5107 CHOWAN COLLEGE
5134 COASTAL CAROLINA C C
5133 COLL OF THE ALBEMARLE
5148 CRAVEN CMY COL
5142 DAVIDSSON CO CMY COL
5150 DAVIDSON COLLEGE
5179 DAVIS HOSP SCH NURS
5174 DUKE U ALLIED HLTH
5173 DUKE U TALENT ID PRJ
5156 DUKE UNIVERSITY
5162 DURHAM COLL
5172 DURHAM TECH INST
5180 EAST CAROLINA UNIV
5094 EDGEcombe TECH CMY COL
5069 ELIZABETH CITY ST U
5123 ELON COLLEGE
5182 FAYETTEVILLE ST UNIV
5208 FAYETTEVILLE TECH IN
5134 FORSYTH TECH INST
5242 GARDNER WEBB COLLEGE
5262 GASTON COLLEGE
5260 GREENSBORO COLLEGE
5261 GUILFORD COLL
5275 GUILFORD TECH INST
5301 HARBOURGER BUS COL
5289 HAWWOOD TECH COLLEGE
5288 HERITAGE UNIVERSITY
5288 HIGH POINT COLL
5319 ISOTHERMAL CMY COL
5350 JAMES SPRUNT TECH CL
5348 JOHN WESLEY COLL
5341 JOHNSON S SMITH UNIV
5351 JOHNSTON TECH COLL
5361 KINGS COLL CHARLOTTE
5356 KINGS COLLEGE RALGH
5364 LEES MCKRAE COLL
5376 LENOIR CMY COL
5375 LENOIR MEMORIAL HOSP
5365 LENOIR RHYNE COLL
5367 LIVINGSTONE COLL
5363 LOUISBURG COLLEGE
5391 MANNA CHRISTIAN COLL
5395 MARS HILL COLL
5445 MARTIN COMMUNITY COL
5434 MARY SCH NURSING
5410 MEREDITH COLL
5426 METHUENIST COLL
5412 MITCHELL CMY COL
5423 MONTREAT ANDERSON C
5423 MOUNT CARMEL COLLEGE
5003 NORTH CAR AGR ST U
5495 NORTH CAR CENTRAL UN
5512 NORTH CAR SCH ARTS
5496 NORTH CAR ST U RALGH
5501 NORTH CAR WESLYN COLL
5533 PEACE COLL
5534 PEMBOKE STATE UNIV
5536 PEIFFER COLL
5537 PEONOMO BIBLE COL
5518 PIEDMONT TECH COLL
5556 PIET COMMUNITY COLL
5544 PRESBYTERIAN HOSP
5560 QUENYON COLL
5558 RANDOLPH TECH COLL
5598 RICHMOND TECH COLL
5597 ROANOKE BIBLE COLL
5564 ROANOKE CHOWAN T INS
5521 ROCKINGHAM COLLEGE
5589 ROWAN TECHNICAL COLL
5595 SACRED HEART COLLEGE
5607 SALEM COLL NC
5661 SAMPSON TECH COLL
5649 SANDHILLS CMY COL
5612 SHAW UNIV
5651 SOUTHEASTERN CC NC
5667 SOUTHWESTERN TECH
5214 ST ANDREWS PRESB COL
5596 ST AUGUSTINES COLL
5600 ST MARY'S COLL NC
5656 SURRY CMY COL
5750 TECHNICAL ALLIANCE
5785 TRI CO COMM COLLEGE

5013 UNC ASHEVILLE
5913 UNC AT GREENSBORO
5915 UNIV N CAROLINA CHAR
5907 UNIV NC CARLINA WILM
5816 UNIV OF NC AT CH
5885 WAKE FOREST UNIV
5928 WAKE TECHNICAL COLL
5886 WARREN WILSON COLL
5915 WATTS HOSPITAL
5926 WAYNE COMM COL
5897 WESTERN NC COLLEGE
5922 WESTERN PIEDMONT C C
5921 WILKES CMY COL
5923 WILLIAM CARTER COLL
5930 WILSON CO TECH INST
5908 WINGATE COLL
5909 WINSTON SALEM ST U

NORTH DAKOTA

6041 BISMARCK JR COLL
5919 BURLINGTON ST COLL
6138 JAMESTOWN COLL
6163 LAKE REGION JR COLL
6428 MARY COLL
5475 MAYVILLE ST COLL
6197 MINOT ST COLL
6474 NORTH DAKOTA ST UNIV
6476 NORTH DOKTA ST S SCI
6878 UNIV N DAKOTA GRANDFO
5919 UNIV N DAKOTA WILSON
6480 VALLEY CITY ST COLL

OHIO

1877 AIR FORCE INST TECH
1017 ANTIPOCH COLLEGE
1002 ART ACADEMY CINCINATI
1021 ASHLAND COLL
5203 AUSTIN COLL
1950 BALDWIN WALLACE COLL
1072 BELMONT TECH COL
3239 BETHESDA HOSPITAL
1048 BLISS COLLEGE
1067 BUFTON COLL
1069 BORNOMME COLLEGE OH
1069 BOWLING GREEN ST U
1099 CAPITAL UNIV
1105 CASE WSTRN RES UNIV
1161 CEDARVILLE COLL
1107 CENTRAL STATE UNIV OH
1143 CHATFIELD COLL
2200 CHATFIELD HOSPITAL
1931 CINCINNATI BIBLE SEM
1934 CINCINNATI TECH COLL
1088 CIRCLEVILLE BIB COLL
1127 CLARK TECHNICAL COLL
1152 CLEVELAND INST ART
1124 CLEVELAND INST MUSIC
1221 CLEVELAND STATE UNIV
1129 COLL MT ST JOSEPH
1134 COLLEGE OF WOOSTER
5435 COLUMBUS BIBLE ART OS
1148 COLUMBUS TECH COL
1979 COOPER SCH ART
1978 CUYAHOCA C C EASTERN
1985 CUYAHOCA C C WESTERN
1162 DAVIS JR COLLEGE
1162 DEFIANCE COLL
1164 DENISON UNIV
1178 DYKE COLL
1599 EGGLECIE C XAVIER U
1191 ERIKSON STATE CMY C
1212 ELYRIA MEMO HOSP
1219 FAIRVIEW GENERAL HSP
1223 FINDLAY COLL
1822 HOCKING TECH COLL
1268 HOLZER MEDICAL CNTR
1287 HURON ROAD HOSPITAL
3242 JEWISH HOSPITAL
1404 JOHN CARROLL UNIV
1367 KENT STATE UNIV
1370 KENYON COLL
1391 LAKE ERIE COLL
1422 LAKELAND COMM COL
1241 LIMA TECH CLOSUSO
1417 LORAIN CO CMY COLL
1427 LOURDES COLL
1423 LUTHERAN MED CTR
1439 MALONE COLL
1441 MARIETTA COLL
1546 MARION TECHNICAL COL
3240 MARY SCH NURSING
1528 MOUNTAIN AREA TCH C
1526 MIAMI UNIV HAMILTON
1509 MIAMI UNIV MIDDLETON
1463 MIAMI UNIV OXFORD
1643 MICH J OWENS TECH CL
1501 MOUNT AUSTINE NOV
1492 MOUNT UNION COLL
1531 MOUNT VERNON NAZRN C
1502 MT CARMEL HOSPITAL
1496 MUSKINGHAM AREA TCH C
1535 MUSKINGUM COLLEGE
1570 NO CENTRAL TECH COLL
1235 NORTHWESTERN TECH COLL
3260 NORTHWESTERN BUS COLL
1560 NOTRE DAME COLL OH
1587 OBERLIN COLLEGE
1589 OHIO COLL PODTRC MED
1131 OHIO DOMINICAN COLL
1585 OHIO NORTHERN UNIV
1592 OHIO STATE UNIV

OHIO UNIV
1611 OHIO VALLEY HOSPITAL
4954 OHIO WESLEYAN UNIV
1597 OTTERBEIN COLL
1348 PONTIAC COLLEGE JOSEPHINUM
1660 RABBINICAL C TELSHE
1663 RIO GRANTON COLLEGE
1790 SHAWNEE STATE C C
1202 SINCLAIR CMY COL
1794 SOUTHERN OHIO COLLEGE
1876 SOUTHERN OHIO COLLEGE
1752 SOUTHERN ST COMM COL
1769 ST ALEXIS HOSPITAL
1695 ST ELIZABETH H MED C
1954 ST VINCENT COLLEGE
3241 ST VINCENT HOSP TOLE
1688 STAR TECH COLL
1774 STARK ST GENL TECH-NO
1817 Tiffin UNIV
1901 TOLEDO HOSP SCH NURS
1956 UCCINOH OH CLG APL SCI
1829 UNIV AKRON
1833 UNIV CINCINNATI
1834 UNIV DARTON
1133 UNIV STEUBENVILLE
1845 UNIV TOLEDO
1846 URBANA COLL
1848 URSULINE COLL
1874 WALSH COLL
1897 WASHINGTON TECH COLL
1892 WAYNE GEN TECH COLL
1906 WILBERFORCE UNIV
1901 WILMINGTON COLLEGE OH
922 WITTENBERG UNIV
1947 WRIGHT ST UNIV CELNA
1179 WRIGHT STATE U DAYTN
1965 XAVIER UNIVERSITY
1975 YOUNGSTOWN ST UNIV

OKLAHOMA

6030 BACONE COLL
6135 BARTSVELL WESLYN C
6063 BETHANY NAZARENE COLL
6080 CAMERON UNIV
6586 CARL ALBERT JR COLL
6091 CENTRAL ST UNIV OK
6117 CONNOR STATE COLL
1186 EAST CNTRL OKLA ST U
6189 EASTERN OKLA ST COLL
6192 EL RENO JR COLL
6361 LANGSTON UNIV
6407 LINDSEY CHRSTN COLL
6421 MURRAY ST COLL
6484 NORTHEASTR OKLA AM C
6485 NORTHEASTR OKLA ST U
6486 NORTHERN OKLAHOMA COLL
6487 NORTHWESTR OKLA ST U
6541 OKLAHOMA BAPTIST UN
6086 OKLAHOMA CHRISTN COLL
6543 OKLAHOMA CITY UNIV
6544 OKLAHOMA HIGHL ST U
6546 OKLAHOMA ST UNIV
6552 ORAL ROBERTS UNIV
6579 PHILLIPS UNIV
6545 ROGERS STATE COLLEGE
6546 SAYRE JR COLL
6657 SOUTHESTRN OKLA ST U
6673 SOUTHWESTR OKLA ST U
6621 ST GREGORYS COLL
6833 TULSA JR COLL
6883 UNIV OF TULSA
6591 UNIV OKLAHOMA
6544 UNIV SCIENCE ARTS OK
6020 WESTRN OKLAHOMA ST U

OREGON

4231 BASSIST COLLEGE
4025 BLUE MOUNTAIN C C
4239 CENTRAL OREGON CC
4745 CHEMUKETA CMY COLL
4111 CLACKAMAS CMY COLL
4089 CLATSOP CMY COLL
4134 COLLEGE CESAR CHIEZ
4076 COLUMBIA CHRSTN COLL
4079 CONCORDIA COLL OR
4300 EASTRNR OREGON ST UN
4274 EUGENE BIBLE COLL
4235 GEORGE FOX COLL
4333 GOOD SAMARITAN HOSP
4364 JUDSON BAPTIST COLL
4407 LEWIS CMY COLL
4394 LEWIS & CLARK COLL
4317 LINCOLN COLL
4413 LINN BENTON CMY COLL
4491 MOUNT ANGEL SEM
4508 MOUNT HOOD CMY COLL
4504 MULLINBACH SCH BIBLE
4543 NORTHWEST CHRSTN COLL
4587 OREGON INST TECH
4586 OREGON ST UNIV
4504 PACIFIC NW COLL ART
4601 PACIFIC UNIV
4617 PORTLAND CMY COLL
4610 PORTLAND ST UNIV
4654 REED COLL
4639 REGUCCO CMY COLL
4702 SOUTHRN OREGON ST C
4729 SOUTHWESTR OREGON C
4825 TREASURE VLY C C
4852 UMPQUA CMY COLL
4846 UNIV OREGON
4847 UNIV PORTLAND
4595 WARNER PACIFIC COLL
4596 WESTERN BAPTIST COLL
4598 WESTERN OREGON ST CLG
4954 WILLAMETTE UNIV

PENNSYLVANIA

2019 ABINGDON MEM HOSP
2302 ACADEMY NEW CHURCH
2020 ALBERT EINSTEIN MED C
2000 ALBRIGHT COLLEGE
2006 ALLEGHENY COLLEGE
2001 ALLEGHENY HOSPITAL
2021 ALLENTOWN C ST FRN OS
2007 ALLIANCE COLL
2028 ALTOONA HOSP SCH NUR
2060 ALVERNIA COLLEGE
2039 ART INSTITUTE PITTSB
2036 BAPTIST BIBLE COLLEGE
2039 BEAVER COLL
2646 BLOOMSBURG ST COLL
3103 BRANDYWINN SCH NRSNG
2049 BRYN MAWR COLLEGE
2059 BRYN MAWR HOSPITAL
2050 BUCKNELL UNIV
2063 BUCKS CO CMY COL
2069 BUTLER CO CMY C PA
2025 C C ALLEGHENY CO NPIT
2156 C C ALLEGHENY CO DATT
2123 C C ALLEGHENY CO WMF
2126 C C BEAVER CO
2071 CABRINI COLL
2647 CALIF ST COLL PA
2421 CARLOW COLL
2074 CARMEL-HELLON UNIV
2122 CC ALLEGHENY CO MONRO
2099 CEDAR CREST COLL
2081 CHATHAM COLL
2089 CHESTER CO HOSP NURS
2082 CHESTNUT HILL COLL
2130 CHESTNUT HILL HOSP
2438 CHEYNEY STATE COLL
2132 CITIZENS GENERAL HSP
2149 CLARION ST COLL
2182 CMY GNRL HOSP RAD T
2140 CMY MEDICAL CENTER
2087 COLL MISERICORDIA
2066 COLLEGE BOARD
2050 COMBES COLL MUSIC
2008 CMY COLL OF PHILA
2128 CONEMAUGH VLY MEM HS
2125 DELAWARE CO COMM COL
2040 DELAWARE V C SCI AGR
2186 DICKINSON COLL
2014 DREXEL UNIV
2001 DUFFS BUS INST
2093 DUQUESNE UNIVERSITY
2046 EAST STROUDSBURG S C
2022 EASTERN COLLEGE
2492 EIDENDORF ST COLL
2215 ELIZABETHTOWN COLL
2217 ENHARTS HOSPITAL
2225 ERIE BUSINESS CTR
2247 FRANKFORD HOSPITAL
2936 FRANKLIN & MARSHALL
2270 GARDNER UNIVERSITY
2273 GEISINGER MED CTR
2273 GERMANTOWN DISP HOSP
2285 GETTYSBURG COLL
2029 GRANT COLLEGE
2277 GROVE CITY COLL
2278 GWYNEDD MERCY COLL
2306 HAHNEMANN UN-HEALTH
2387 HARCUM JR COLL
2399 HARRISBURG AREA C C
2315 HAVERFORD COLLEGE
2389 HAZLETON ST GEN HOSP
7001 FAMILY COLL
2297 IMMACULATA COLL
2652 INDIANA UNIV OF PENNA
2732 INST COMPUTER SCIENC
2329 INV SCHOOL PROF ART
2337 JAMESON MEMORIAL HOSP
2314 JUNIATA COLLEGE
2351 KEYSTONE JR COLL
2353 KINGS COLL PA
2653 KUTZTOWN ST COLL
2374 LA ROCHE COLLEGE
2363 LA SALLE COLLEGE
2373 LACKAWANNA JR COLL
2361 LAFAYETTE COLLEGE
2388 LAFAYETTE BIBLE COL
2387 LANCASTER GENRL HOSP
2375 LANCKENAU HOSPITAL
2364 LANHEAN VALLEY COLL
2381 LEHIGH CO CMY COLL
2365 LEHIGH UNIVERSITY
2741 LINCOLN TECH INST
2367 LINCOLN UNIV PA
2654 LOCK HAVEN ST COLL
2382 LUZERNE CO CMY COLL
2306 LUCYBACH COLL
2474 MANNA BIBLE INST
2650 MANOR JR COLLEGE
2265 MANSFIELD ST COLL
2387 MARYGARDEN COLLEGE
2473 MEMORIAL HOSP ROXBORO
2446 MERCY HOSPITAL
2447 MERCY HOSPITAL PITTSBG
2457 MERCY HOSPITAL SHARPT
2457 MERCYHURST COLLEGE
2411 MESSIAH COLLEGE
2458 METHUENIST HOSPITAL
2656 MILLERSVILLE ST COLL
2407 MONTGOMERY COLL
2417 MOORE COLLEGE OF ART
2418 MORAVIAN COLL
2266 MOUNT ST JOSEPH POST
2420 MT ALVOSIUS JR COLL
2424 MUMFERNBERG COLL
2628 NEUMANN COLLEGE

2577 NEW CASTLE BUS COLLEGE
2573 NORTHAMPTON CO AR CC
2567 NORTHESTRN CHRSTN JC
2576 NORTHESTRN HOSP
2624 OHIO VLY GENRL HOSP
2636 PERCE JR COLL
2645 PENN COLL OPTOMETRY
2655 PENN INST OF TECH
2705 PENN ST U COLL MED
2660 PENN STATE UNIV K
2665 PHILA C PERFORM ARTS
2664 PHILA COLL ART
2661 PHILA COLL BIBLE
2663 PHILA COLL PHAR SCI
2674 PHILA COLL TEX SCI
2687 PHILIPSBURG ST GEN H
2718 PITTSBROOK JR COLLEGE
2684 PITTSBURGH HOSPITAL
2676 POINT PARK COLL
2693 POTTSVILLE HOSPITAL
2679 PRESBYTRN U PA MED C
2743 READING AREA C C
2772 READING AREA C C
2769 ROBERT MORRIS COLL PA
2768 ROBERT PACKER HOSP
2763 ROSEMONT COLL
2812 SETON HILL COLL
2814 SEWICKLEY HILL HSP
2836 SHADYSIDE HOSPITAL
2830 SHARON GENERAL HOSP
2657 SHIPPENSBURG ST COLL
2818 SLOPPERS ROCK ST COLL
2811 SPRING GARDEN CTR
2886 ST AGNES MEDICAL CTR
2794 ST CHARLS BORMEOSE S
2797 ST FRANCIS COLL PA
2812 ST FRANCIS JR PITTS
2874 ST FRANCIS HOSP NCTL
2872 ST JOSEPH HOSP LANC
2873 ST JOSEPHS HOSP READ
2801 ST JOSEPHS HOSP
2810 ST LUKES HOSPITAL
2882 ST MARGARET MEM HOSP
2808 ST VINCENT COLL
2833 ST VINCENT HLTH CTR
2835 SUSQUEHANNA COLL
2821 SWARTHMORE COLLEGE
2902 TEMPLE UNIVERSITY
2910 THIEL COLL
2903 THOMAS JEFFERSON UNIV
2903 U PENN--ANNBERG
2943 U PENN--WHARTON SCH
2940 UNIONTOWN HOSP S NUR
2242 UNITED WESLEYAN COLL
2916 UNIV PENN
2916 UNIV PENN C GENRL ST
2944 UNIV PENN DENT COL
2936 UNIV PITT GREENSBURG
2940 UNIV PITTSBG CHSOTO
2936 UNIV PITTSBG JOHN
2937 UNIV PITTSBG PITTS
2937 UNIV PITTSBG TITUS
2935 UNIV PITTSBURGH BRAD
2939 UNIV SCRIPPS
2931 URSINUS COLLEGE
2959 VALLEY FORGE CHRSTN
2955 VALLEY Forge MILT JC
2957 VILLA MARIA COLL
2954 VILLA MARIA HOUSS STD
2959 VILLANOVA UNIVERSITY
2973 WASHINGTON HOSPITAL
2967 WASHINGTON JEFFRSN C
2963 WATKINS COLLEGE
2659 WEST CHESTER ST COLL
2983 WESTERN PENN HOSPITAL
2975 WESTMINSTER COLL PA
2968 WESTMORELAND CO C C
2932 WHEELER SCHOOL
2642 WIDENER COLL
2977 WILKES COLL
2989 WILLIAMSPORT AREA CC
2981 WILLIAMSPORT HOSPITAL
2979 WILSON COLL
2991 YORK COLL PENN

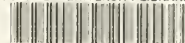
Puerto Rico

0886 BAYAMON CENTRAL UNIV
0779 CARIBBEAN UNIV COLL
0719 CATHOLIC UNIV P R
0780 COLEGIO UNIV PURTO
0781 INTER AMERICA C C H RE
0946 INTER AMERICA U S A G
0304 INTRNATL CHRSTN UNIV
0833 PUERTO RICO JR COLL
0836 U PR PRNCE TECH U CL
0913 UNIV OF PUERTO RICO
0913 UNIV OF SACRED HEART
0911 UNIV PURTO RICO AREC
0852 UNIV PURTO RICO BAYM
0981 UNIV PURTO RICO CAYM
0874 UNIV PURTO RICO HUMA
0912 UNIV PURTO RICO MAYA
0919 UNIV PURTO RICO RICO

RODRE ISLAND

3692 BARRINGTON COLL
3094 BROWN UNIVERSITY
3095 BRYANT COLL
3733 CMY COLL RHODE IS
3465 JONATHAN WALKES COLL
3476 KATHARINE GIBBS S R
3642 NEWPORT HOSPITAL
3693 PROVIDENCE COLL
3724 RHODE ISLAND COLLEGE
3729 RIGHER OF DESIGN
3726 ROGER WILLIAMS COLL

3797	ST JOSEPH'S HOSPITAL	1469	MIDMPS-IST ST UNIV	6619	ST EDWARDS UNIV	5294	HOLLINS COLLEGE	4951	WHITMAN COLL
3919	UNIV RHODE ISLAND	1468	MIDDLE TENN ST UNIV	6637	ST MARY'S UNIVERSITY	5340	J SARGANT REYNOLDS CC	4953	WHITWORTH COLL
		1468	MILLIGAN COLLEGE	6642	ST PHILIPS COLLEGE	5676	J SARGANT REYNOLDS CC	4993	YAKIMA VLY CMY COLL
		1468	MORRISTOWN COLLEGE	6682	STEPHN F AUSTIN ST U	5392	JAMES MADISON UNIV		
		1654	MOTLOW STATE UNIV	6835	SUL ROSS ST UNIV	5342	JOHN TYLER CMY COLL		
		1658	NASHVILLE ST TEC INS	6837	TARLETON JR COLL	5385	LIBERTY UNIV		
		1725	ROANE ST CMY COLL	6845	TARRANT CO JR COLL NW	5368	LONGWOOD COLL		
		1727	SOUTHERN COLL OPTMTRY	6834	TARRANT CO JR FTWTH	5381	LOU FAIRFAX C		
		1732	SOUTHERN MISSIONARY C	6837	TARRANT CO JR HURST	5380	LOUISE OBIDY SCH NUR		
		1803	SOUTHWESTERN ST MEMPHIS	6838	TARRANT CO JR COLL	5380	LUCIBO BOND MARSHL LD		
		1804	TENNESSEE STATE UNIV	6835	TEX ASM U GALVESTON	5372	LYNCHBURG STATE UNIV		
		1804	TENNESSEE TECH UNIV	6819	TEXARKANA CMY COLL	5397	MARY BALDWIN COLL		
		1815	TENNESSEE WESLEYAN U	6822	TEXAS A I UNIV	5398	MARY WASHINGTON COLL		
		1818	TENNESSEE WESLEYAN U	6803	TEXAS ASM U COLL STA	5405	MARYMOUNT COLL VA		
		1826	TOLSON UNIV	6821	TEXAS COLL	5451	MOUNTAIN EMPIRE C C		
		1809	TRAVECOA NAZARENE C	6823	TEXAS LUTHERAN COLL	5502	NATIONAL BUS COLL		
		1812	TRESCULUM COLLEGE	6824	TEXAS SOUTHERN UNIV	5513	NEW RIVER CMY COLL		
		1831	U T AT CHATTANOOGA	6825	TEXAS SOUTHWEST COLL	5504	NORFOLK GENERAL HOSP		
		1826	UNIV UNIV	5862	TEXAS TECH HAWKLAND	5510	NORTH VIRG CC ALEX		
		1843	UNIV OF THE SOUTH	6328	TEXAS ST TECH WACO	5510	NORTH VIRG CC ANAN		
		1843	UNIV TENNESSEE KNOX	6827	TEXAS TECH UNIV	5515	NORTH VIRG CC STARS		
		1844	UNIV TENNESSEE MARTIN	6828	TEXAS WESLEYAN COLL	5774	NORTH VIRG CC MGR		
		1850	UNIV TENNESSEE MEMPH	6826	TEXAS WOMANS UNIV	5775	NORTH VIRG CC STARS		
		1881	VOLUNTEER ST COM COLL	6831	TRINITY UNIV	5418	OLD DOMINION UNIV		
		1893	WALTERS ST C	6833	TYLER JR COLL	5126	PATRICK HENRY C C		
				6870	UNIV HOUSTON CENTRAL	5549	PATRICK HENRY C C		
				6916	UNIV HOUSTON CLR LKE	5557	PETER D CAMP C C		
				6917	UNIV HOUSTON VICTORIA	5557	PETERSBURG GENL HOSP		
				6922	UNIV HOUSTON DWYNT C	5561	PIEDMONT VIRGINIA CC		
				6936	UNIV MARY HARDIN-BAY	5565	RADFORD UNIV		
				6880	UNIV ST THOMAS	5566	RANDOLPH MACON COLL		
				6013	UNIV TEXAS ARLINGTON	5567	RANDOLPH MACON W COLL		
				6918	UNIV TEXAS AUSTIN	5567	RANDOLPH MACON W COLL		
				6897	UNIV TEXAS DALLAS	5574	RICHARD BOND COLL		
				6829	UNIV TEXAS EL PASO	5576	RICHMOND MEMRL HOSP		
				6888	UNIV TEXAS HOUSTON	5580	RIVERSIDE HOSPITAL		
				6908	UNIV TEXAS HSC SAN A	5571	ROANOKE COLLEGE		
				6919	UNIV TEXAS SAN ANTONIO	5571	ROANOKE MEDICAL HOSP		
				6915	UNIV TEXAS SAN ANTONIO	5613	SHENANDOAH C CONS M		
				6968	UNIVERSITY OF DALLAS	5654	SMITHOAK MASSY BU C		
				6913	VERNON REGIONAL JR C	5625	SOUTHERN SEM JR COLL		
				6915	VICTORIA COLL	5660	SOUTHWEST VA CC ALBR		
				6931	WACKLAND BAPTIST COLL	5636	SOUTHWEST VA CC ALBR		
				6931	WEATHERFORD COLL	5659	SOUTHWEST VA CMY COLL		
				6938	WEST TEXAS ST UNIV	5675	ST LUKES HOSPITAL		
				5915	WESTERN TEXAS COLL	5604	ST LUKES COLL VA		
				6939	WHARTON JR COLL	5634	SWEET BRIAR COLL		
				6940	WILEY COLL	5640	THOMAS M ST COLL		
				5707	TIDWATER CC CHESAPE	5707	TIDWATER CC CHESAPE		
				5226	TIDWATER CC PORTSM	5226	TIDWATER CC PORTSM		
				5787	TIDWATER CC VA BCH	5787	TIDWATER CC VA BCH		
				5567	UNIV RICHMOND RICH C	5567	UNIV RICHMOND RICH C		
				5820	UNIV VIRGINIA	5820	UNIV VIRGINIA		
				5861	VIRGINIA COLLEGE	5861	VIRGINIA COLLEGE		
				5967	VIRGINIA COMM U ACAD	5967	VIRGINIA COMM U ACAD		
				5403	VIRGINIA POLY TECH UNIV	5403	VIRGINIA POLY TECH UNIV		
				5432	VIRGINIA COMM U NURS	5432	VIRGINIA COMM U NURS		
				5927	VIRGINIA HOGLHNS C C	5927	VIRGINIA HOGLHNS C C		
				5857	VIRGINIA INTRMT COLL	5857	VIRGINIA INTRMT COLL		
				5858	VIRGINIA MILTRY INST	5858	VIRGINIA MILTRY INST		
				5841	WEBSTER ST COLL UNIV	5841	WEBSTER ST COLL UNIV		
				5859	WESTMINSTER COLLEGE	5859	WESTMINSTER COLLEGE		
				5862	VIRGINIA UNION UNIV	5862	VIRGINIA UNION UNIV		
				5867	VIRGINIA WESLYN COLL	5867	VIRGINIA WESLYN COLL		
				5868	VIRGINIA WESTRN C C	5868	VIRGINIA WESTRN C C		
				5917	WYTHEVILLE BAPTIST COLL	5917	WYTHEVILLE BAPTIST COLL		
				5917	WYTHEVILLE BAPTIST COLL	5917	WYTHEVILLE BAPTIST COLL		
				4029	BELLEVUE CMY COLL	4029	BELLEVUE CMY COLL		
				4029	BIG BEND CMY COLL	4029	BIG BEND CMY COLL		
				4044	CENTRAL WASHINGTON U	4044	CENTRAL WASHINGTON U		
				4045	CENTRALIA COLLEGE	4045	CENTRALIA COLLEGE		
				4042	CITY COLLEGE	4042	CITY COLLEGE		
				4055	CLARK COLLEGE	4055	CLARK COLLEGE		
				4301	EASTERN WASHNGTN UNIV	4301	EASTERN WASHNGTN UNIV		
				4307	EDMONDS CMY COLL	4307	EDMONDS CMY COLL		
				4307	EVERETT CMY COLL	4307	EVERETT CMY COLL		
				4402	EVERGREEN ST COLL	4402	EVERGREEN ST COLL		
				4103	FT STELLA COLL	4103	FT STELLA COLL		
				4330	FT WRIGHT COLL	4330	FT WRIGHT COLL		
				4344	GONZAGA UNIV	4344	GONZAGA UNIV		
				4332	GRAYS HARBOR COLL	4332	GRAYS HARBOR COLL		
				4348	HIGHLINE CMY COLLEGE	4348	HIGHLINE CMY COLLEGE		
				4374	KINMAN BUSINESS UNIV	4374	KINMAN BUSINESS UNIV		
				4408	LOWER COLUMBIA COLL	4408	LOWER COLUMBIA COLL		
				4541	LUTHERAN BIBLE INST	4541	LUTHERAN BIBLE INST		
				4578	NORTH SEASIDE C C	4578	NORTH SEASIDE C C		
				4583	OLYMPIA TECH C C	4583	OLYMPIA TECH C C		
				4597	PACIFIC SOUND COLL	4597	PACIFIC SOUND COLL		
				4618	PENINSULA UNIV	4618	PENINSULA UNIV		
				4741	PUGET SOUND C C	4741	PUGET SOUND C C		
				4694	SEATTLE UNIV	4694	SEATTLE UNIV		
				4738	SHORELINE CMY COLL	4738	SHORELINE CMY COLL		
				4699	SKEGAT VALLEY COLL	4699	SKEGAT VALLEY COLL		
				4759	SOUTH SEATTLE C C	4759	SOUTH SEATTLE C C		
				4759	SPOKANE CMY COLL	4759	SPOKANE CMY COLL		
				4674	ST MARTINS COLLEGE	4674	ST MARTINS COLLEGE		
				4826	TACOMA CMY COLL	4826	TACOMA CMY COLL		
				4854	UNIV PUGET SOUND	4854	UNIV PUGET SOUND		
				4940	WALLA WALLA COLL	4940	WALLA WALLA COLL		
				4940	WALLA WALLA COLL	4940	WALLA WALLA COLL		
				4705	WASHINGTON ST UNIV	4705	WASHINGTON ST UNIV		
				4947	WESTERN WASH UNIV	4947	WESTERN WASH UNIV		
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Columbia Presbyterian Medical Center of NewYork-Presbyterian Hospital



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| 1 Bard Haven Towers 1-1, 1-2, and 1-3
MSPH Departments: Tower 1-1
Heilbrunn Population and Family Health, B2, B3
Environmental Health Sciences, B1 | 9 School of Nursing/Georgian Building (also Student Residences) | 22 Edward S. Harkness Eye Institute |
| 2 Bard Hall (Student Residences/ Administration) | 10 William Black Medical Research Building | 23 Service Building |
| 3 Lawrence C. Kolb Research Building | 11 Alumni Auditorium | 24 Mary Woodard Lasker Biomedical Research Building**/University Bookstore |
| 4 Armand Hammer Health Sciences Center (classrooms)/Augustus C. Long Library | 12 College of Physicians & Surgeons | 25 Audubon NYC Building |
| 5 Mailman School of Public Health (MSPH)
Dean's Office, 14th floor
Student Affairs, 10th floor
Career Services, 10th floor
Admissions and Financial Aid, 10th floor
Sociomedical Sciences, 9th floor
Epidemiology, 7th floor
Biostatistics, 6th floor
National Center for Children in Poverty, 8th floor | 13 Vanderbilt Clinic/School of Dental and Oral Surgery | 26 106 Haven (Student Residences) |
| 6 The Neurological Institute of New York Program in Physical Therapy and Programs in Occupational Therapy, 8th floor | 14 New York City Department of Health InCHOIR, 7th floor
MSPH Departments:
Health Policy and Management, 6th floor
General Public Health, 6th floor
Executive M.P.H., 6th floor | 27 154 Haven (Student Residences) |
| 7 The Milstein Hospital Building | 15 The Harkness Pavilion | 28 Irving Cancer Research Center** (under construction) |
| 8 Herbert Irving Pavilion (formerly Atchley Building) | 16 Presbyterian Hospital Building Learning Center, 17th floor
Institute of Human Nutrition, 15th floor | 29 Russ Berrie Medical Science Pavilion** |
| | 17 Pauline A. Hartford Memorial Chapel | 30 New York State Psychiatric Institute |
| | 18 Radiotherapy Center | 31 MorganStanley Children's Hospital Building* (under construction) |
| | 19 Children's Hospital* (North) | 32 Future Audubon IV** |
| | 20 Children's Hospital* (South)/Sloane Hospital for Women | 33 Future Audubon V** |
| | 21 Eye Institute Research Laboratories | |
- Subway Stations (at 168th Street):
 1 and 9 Local (Broadway/7th Avenue)
 A Express, C Local (8th Avenue)
- Columbia Shuttle Bus Stop
- *Children's Hospital of NewYork-Presbyterian
 **Part of the Columbia University Audubon Biomedical Science and Technology Park



MAILMAN SCHOOL OF PUBLIC HEALTH
Columbia University

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